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Forest Service

Tongass
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R10-MB-296b



July 1995

Lab Bay Project Area Draft Environmental Impact Statement

Ketchikan Pulp Company Long-Term Timber Sale Contract

Volume 2

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Lab Bay Environmental Impact Statement

Appendix A

Reasons for Scheduling the Environmental Analysis of the Lab Bay Area

Reasons For Scheduling The Environmental Analysis Of The Lab Bay Project Area

KPC Long-term Timber Sale Contract Offerings

This appendix explains why the Lab Bay Project Area is scheduled for environmental analysis at this time.

Summary

Reasons for scheduling the Lab Bay Project Area at this time, for detailed consideration of timber harvest under the Ketchikan Pulp Company Long-term Timber Sale Contract, may be summarized as follows:

1. The Lab Bay Project Area is within the designated primary sale area for the Ketchikan Pulp Company Long-term Timber Sale Contract, and contains a sufficient amount of harvestable timber volume designated as LUD III or IV, and therefore appropriate for harvest under the Tongass National Forest Land Management Plan (TLMP). Available information indicates harvest of the amount of timber being considered for this project can occur consistent with Forest Plan Standards and Guidelines and other requirements for resource protection. Consideration of areas outside the designated sale area at this time would not meet Ketchikan Pulp Company Contract requirements and is otherwise not necessary or reasonable.
2. Other areas with available timber inside the designated sale area will be necessary for harvest within the remainder of the Ketchikan Pulp Company Contract term (by 2004) in order to meet contract volume requirements. Effects on subsistence resources are projected to differ little according to which sequence these areas are subjected to harvest. Harvesting other areas on the Tongass National Forest with available timber is expected to have similar potential effects on resources, including those used for subsistence because of widespread distribution of subsistence use and other factors. Harvest of these other areas is foreseeable, in any case, over the forest planning horizon under either the existing or proposed revised Forest Plan.
3. Providing substantially less timber volume than required by the Ketchikan Pulp Company Contract in order to avoid harvest in the Lab Bay Project Area or other project areas would not meet contract requirements and is otherwise not necessary or reasonable.
4. It is reasonable to schedule harvest in the Lab Bay Project Area at present rather than other areas in terms of previous harvest entry and access, level of controversy over subsistence and other effects, and the ability to complete the National Environmental Policy Act (NEPA) process and make timber available to meet contract requirements by the time it is reasonably necessary to do so. Other areas that are reasonable to consider for harvest in the near future are the subject of other project EISs that are currently ongoing or scheduled to begin soon.

More detail regarding the scheduling of the environmental analysis for the Lab Bay Project Area is presented in this appendix in three subsections:

Ketchikan Pulp Company Contract Requirements

Contract Background

In 1951, the Forest Service and Ketchikan Pulp Company (APC) entered into a contract for sale and harvest of timber in Southeast Alaska for a 50-year period beginning in 1954 and ending in 2004. A primary function of this long-term contract was to "establish a new industrial enterprise which will be an important and significant step in the industrial development of Alaska" (Forest Service 1956).

The current management situation consists of a valid contract between the Forest Service and KPC, contract number A10fs-1042. This contract bestows rights and obligations on both parties. One obligation for the Forest Service is to provide the agreed upon volume from an identified contract sale area on the Tongass National Forest. Contract section B0.62 states in part "Forest Service shall seek to specify sufficient Offerings to maintain a Current Timber Supply in all Offering Areas that total at least three years of operations hereunder or until the contract termination date, whichever comes first, and which meets the the production requirements of Purchaser's manufacturing facilities." This three year supply equates to approximately 615 million board feet.

"Current Timber Supply" is defined in the contract generally as timber which the Forest Service has specified according to Forest Service planning procedures and for which the NEPA process has been completed. The Forest Service specifies timber through approving in writing a timber "Offering" under the contract, comparable to an independent timber sale. This approval in writing is represented by issuance of an "A Division" contract document for the Offering. An EIS such as the Lab Bay Project Area EIS may cover one or up to several such Offerings, which may be specified by the Forest Service and therefore added to the contract "Current Timber Supply" concurrently or sequentially after issuance of the Record of Decision for the Project. Generally, layout on the ground of roads and harvest units selected in the Record of Decision (ROD) will be completed for each Offering prior to issuance of the "A Division" approval document.

The Forest Service Timber Sale Preparation Handbook (FSH 2409.18 Chapter 10) details the process utilized to prepare timber sales. This process also guides the preparation of timber Offerings under the KPC Contract. The timber sale preparation process is summarized below. Included in brackets is information describing modifications to the process specific to the KPC Contract. The Handbook states:

The timber sale preparation process begins with the identification of the sale area and ends with the award of the timber sale contract [as described above, the process for the KPC Contract ends with the issuance of an "A Division" contract document for the Offering]. These activities pass through specific stages, called "gates", each of which requires specific outputs before proceeding to the next gate. . . Following are descriptions of work processes at each gate.

Gate 1. Begin sale preparation activities with scoping or position statement development. Identify the purpose and need for the project, public issues, interested outside parties, management issues, resource opportunities in the

sale area, a range of possible volume targets, and initial transportation system needs. . .

Gate 2. During the sale area design (environmental analysis) phase, develop alternative designs and analyze them for environmental effects. Concurrently, develop an analysis file to store the information that is gathered. Once a course of action is selected, develop a sale implementation plan that provides detailed instructions for field layout of all sale elements. The end product of the sale area design phase is the selection of the preferred alternative and signature of the decision notice by the official authorized to approve the project. . .

Gate 3. Activities leading to sale plan implementation include the data gathering and the on-the-ground marking, designating, and delineating needed to properly support the appraisal, the preparation of the contract, and post-award sale administration efforts. The sale passes through gate 3 when the field work is completed. . .

Gate 4. After gathering all necessary engineering design work, cruise (volume) information, logging costs, environmental protection costs, and other elements of the timber appraisal. . . [a final timber appraisal is prepared for the offering(s) and an "A Division" contract document is issued].

Contract provisions require KPC to harvest timber, construct and operate a mill for primary manufacture and to recruit labor from residents of Southeast Alaska. To fulfill this obligation KPC operates a sawmill and a pulp mill in Ketchikan and a sawmill in Metlakatla.

Why Areas Outside The Primary Sale Area Boundary Are Not Considered In Detail

Since authorization of the KPC contract in 1951, several laws have changed the land base from which the authorized timber volume could be removed. The Alaska Native Claims Settlement Act (ANCSA) authorized substitution to replace areas selected by the Native Companies. The Alaska National Interest Lands Conservation Act (ANILCA) authorized substitution for areas designated by Congress as Wilderness in that statute which were in the primary sale area. The substitutions for Native selections and Wilderness selections were accomplished prior to the Lab Bay Project Area environmental analysis process.

Section B0.3 of the contract, *Description of Timber*, states in part:

The Ketchikan Pulp & Paper Company . . . , hereby agrees to purchase from an area definitely designated on the attached maps which are part of this agreement, within pulptimber Allotments E, F, and G. . . The estimated amount to be cut under the methods of marking described in B2.3 is 1,500,000,000 cubic feet of western hemlock, Sitka spruce, western redcedar, Alaska cedar, and other species of timber, more or less.

Section B0.31 of the contract, *Additional Areas*, states in part:

In the event the quantity of timber available for cutting within the above described area is insufficient for full scale operation until June 30, 2004 . . . the Regional Forester shall designate additional cutting areas within Pulptimber Allotments E, F, and G to meet such needs of such plants for the period ending June 30, 2004, provided, that the Regional Forester is not obligated to make available for cutting more than the 1,500,000,000 cubic feet of material covered by this agreement. . .

Section B0.61 of the Contract, *Timber Offering Schedule*, provides in part:

"To the extent authorized by law, Offering Areas may be identified for harvest outside the sale area, as needed to meet sale volume requirements."

The Lab Bay Project Area lies within the "primary sale area" in Allotments E and G described in contract section B0.3. Current data indicates that there remains sufficient timber available within the designated sale area, including the additional areas described in Contract section B0.31 above, to provide the remaining unharvested portion of the total contract volume of 1,500,000,000 cubic feet, consistent with Forest Plan Standards and Guidelines and other requirements for environmental protection. The most recent Supplement to the Draft EIS for the Tongass Land Management Revision (TLMP SDEIS), which considers reductions in timber base due to the Tongass Timber Reform Act (TTRA), indicates this for the "current direction" alternative. For the current preferred alternative for the TLMP revision, the TLMP SDEIS indicates that there is at present easily enough available volume within the primary designated sale area to meet contract volume requirements for the next several years at least, while still meeting all constraints associated with the alternative. At some point in the future however, volume will also be required from the contingency areas to fulfill the contract volume requirements. This evaluation is incorporated by reference and further described in the last section in this Appendix, *Forest Plan Implementation*.

Therefore, providing volume outside of the primary sale area is not necessary at this time under the terms of the contract. Modifying the contract does not meet the purpose and need for the project. Although KPC has indicated that the Forest Service has the discretion to consider obtaining volume from outside the designated sale area, it has not expressed an interest obtaining timber from other areas in lieu of the Lab Bay Project Area. The criteria for modification in 36 CFR 223.112,113 have not been met, considering the information in the TLMP SDEIS, and this EIS. Congress in enacting the Tongass Timber Reform Act declined to modify the contract sale area, and by directing in section 301(e) of the statute that the Secretary of Agriculture report to Congress on the effects of eliminating the sale area, indicated an intent to reserve this decision to the legislature.

Why Providing Less Than The Contract Volume Was Not Considered In Detail

Congress in section 301(e) of the TTRA also indicated its intent to reserve to itself the question of providing less than the contract volume obligation to KPC. Providing less than the contract volume would not meet the purpose and need for the Lab Bay Project. The Forest Service can expect a large monetary claim from KPC for not meeting contract volume obligations, for which there is no current funding. To the contrary, recent federal appropriations legislation has dedicated additional money to providing additional timber offerings to KPC and other Tongass National Forest timber purchasers. Volume from independent timber sales or sources outside the Tongass National Forest do not fulfill KPC Contract requirements. In any case, there is not sufficient projected volume from other sources to meet KPC volume requirements.

Logs from Native Company lands cannot substantially meet the total needs of KPC. Owners of private timberland are able to sell their sawlogs on the export market for much higher prices than can be paid by local manufacturing. KPC is not prohibited under the Contract from purchasing timber from Native Companies or other sources, subject to the requirement that, ". . . at least three-fourths of the pulpwood requirements of the pulp manufacturing plant and other processing facilities operated in conjunction with this sale shall be cut from the areas covered by this agreement during the period prior to July 1, 1964, and during each 5-year operating period subsequent to that date." (KPC contract B0.53). There are no provisions in the Contract to offset such purchases by adjusting the Contract

timber volume. Harvest from Native Company lands is decreasing, reducing potential pulp as well as sawlog availability from these lands (TLMP SDEIS page 3-339).

Canadian timber has been mentioned in the past as a source of supply for Southeast mills. Southeast Alaska pulp mills have purchased pulp logs from British Columbia (BC) in the past. However, the political and economic situation in British Columbia has changed to decrease the likelihood of substantial supply from this source. The June 1988 issue of British Columbia Lumberman, page W14, states that a substantial increase in demand for BC forest products is expected to decrease log exports. The Forest Minister stated: "Our main objective is to use BC timber to manufacture wood products in this province." It has been more recently stated that British Columbia is considering prohibiting log exports and is facing increased environmental pressures (TLMP SDEIS, page 3-339).

Trying to meet the long-term volume contractual obligations from outside the long-term timber sale boundaries would decrease the availability of timber for the independent timber sale program, including the Small Business Set Aside Program; obtaining a substantial portion of long-term contract timber from outside the designated sale areas would probably decrease the independent sale program by an equivalent amount under the current TLMP allowable sale quantity. Under the current Plan, an annual average of 271 MMBF net sawlog of the ASQ is needed to meet the long-term sale requirements, leaving an annual average of 179 MMBF net sawlog for the independent program.

The TLMP SDEIS (table 3-134, page 3-368) shows for the current Plan as amended by the TTRA (Alternative C) the contribution to ASQ net sawlog (MMBF) by Allotment Area. Contingency Areas of Allotment E, F, and G of the KPC contract area contribute 125 MMBF annual average (28%) to the ASQ. Designating any part of this volume for the long-term sale would directly reduce the portion of the ASQ available for the independent program. The timber volume included in the action alternatives in the Lab Bay Project Area EIS and scheduled from this area in the TLMP for the long-term contract is greater than the current yearly size of the entire Small Business Administration timber sale program agreed to with the SBA, 80 MMBF. Section 105 of the Tongass Timber Reform Act reflects Congressional intent that the SBA program continue.

Lack of an adequate timber supply to support these programs could affect the existing mill infrastructures and employment. The TLMP SDEIS (table 3-118, page 3-337) shows that lumber mill capacity for independent operators is about 220 MMBF annually (380 MMBF minus the Wrangell and KPC Sawmills). During good market conditions, the short term sales program has purchased up to 174 MMBF and harvested up to 149 MMBF annually which translates into about 67 percent of the mill capacity (TLMP SDEIS, table 3-114, page 3-325). Therefore, under good market conditions, the existing infrastructure can absorb the available supply. Elimination of short term sales under the independent and set-aside programs would translate into a loss of between 815 and 1144 timber-related jobs (TLMP SDEIS page 3-370, 3-610).

Current Timber Supply And Contract Volume Needs

This section provides an updated look at the timber volume projected to be available. It includes a tentative schedule projecting how volume is to be made available to meet contract obligations which states; "Forest Service shall seek to to specify sufficient Offerings to maintain a Current Timber Supply in all Offering Areas that totals at least three years of operations hereunder or until contract termination date, whichever comes first, and which meets the production requirements of the Purchaser's manufacturing facilities." (Contract Section B0.62).

Generally, there is a need for approximately 2,500 million board feet of timber volume. This equates to an average of approximately 205 million board feet per year. Table 1 shows the volume available as of January 1, 1992 and displays how timber volume would be scheduled through 2004 to help meet current timber supply needs.

Table 1
Current Timber Supply and Projected Harvest to 2004.¹
(MMBF/YEAR)

Year	93	94	95	96	97	98	99	00	01	02	03	04
NEPA COMPLETED												
89-94	120											
Frosty	33											
Starfish	45											
12 Mile	12											
Shelter Cove	17											
NEPA REQUIRED												
CPOW	290											
North Revilla	200											
Polk Inlet	125											
Lab Bay		85										
Control Lake		187										
Upper Carroll		130										
Heceta			75									
Sea Level			67									
Three Creeks			49									
Vixen Inlet				175								
Port Stewart				135								
Chasina					166							
Tuxekan					59							
Ratz					40							

Year	93	94	95	96	97	98	99	00	01	02	03	04
North POW						103						
Moir						119						
South POW							80					
Honker							119					
Luck Lake								107				
Lower Carroll								41				
Chomondeley								75				
NEPA Cleared Volume	615	402	191	310	265	222	199	223				
Initial Wood Supply	230	640	837	823	928	988	1005	999	1017	812	607	402
Projected Harvest	205	205	205	205	205	205	205	205	205	205	205	205
Ending Wood Supply	640	837	823	928	988	1005	999	1017	812	607	402	197

Note: Approximately 197 MMBF of the above figures is anticipated to be included in the Ketchikan Area's independent sale program. Numbers shown in parentheses indicate EISs in progress.

¹ All volume figures shown include sawlog and utility volume and are in MMBF.

The Lab Bay Project Area EIS offers volume to help meet KPC contract obligations starting in 1994. This amount of volume is reasonably necessary to help maintain a three year Current Timber Supply of at least 615 million board feet of timber. Based on the scenario shown in table 1, operations in Lab Bay Project Area could begin in 1994 with all operations substantially complete by 1997.

Tongass Land Management Plan

TLMP As Amended Winter 1985-86

Chapter 1 of this EIS includes an explanation of how this project relates to the Tongass Land Management Plan. That section describes the Land Use Designations (LUDs) which allocate land areas to different types of management. Chapter 1 also explains that these LUDs were assigned to land areas known as Value Comparison Units (VCUs), and that one or more contiguous VCUs were formed into Management Areas (MAs). This section also describes the management emphasis for the Management Areas likely to be affected by the Lab Bay Project.

The Tongass Land Management Plan, As Amended Winter 1985-1986, not only detailed Management Direction/Emphasis for each Management Area, it also scheduled specific Management Activities for specific time periods. In particular it scheduled timber sale preparation activities for 1985-89 and 1990-94. Table 2 displays the Management Areas scheduled for timber sale preparation during 1990-94.

Table 2
TLMP, As Amended Winter 1985-86, Activity Schedule

Management Area	Name	Years Scheduled	Activity Scheduled
K01	Sumner	90-94	Timber Sale Prep
K02	Salmon Bay	90-94	Timber Sale Prep
K03	El Cap/Whale Pass	90-94	Timber Sale Prep

The Allowable Sale Quantity (ASQ), calculated in TLMP and used in Congressional deliberations and decisions on ANILCA, assumed harvest in all LUD III and LUD IV VCUs, in compliance with the Southeast Area Guide, on a three entry, 100 year rotation. Some selected areas were scheduled for 4 entries in 120 years (LUD IV) and 6 entries in 200 years (LUD III) for visual considerations. A three entry rotation assumes the first entry will be made within 30 to 40 years. If areas are not entered, and the ASQ is harvested, other areas will have to receive a heavier entry, resulting in a pattern of high percentage first entries being established, and therefore creating conditions under which the three-entry rotation may not be achievable.

The TLMP as amended also scheduled as anticipated management outputs from the Ketchikan Area timber volume ranging from 195.0 million to 220.3 million annually (Tongass Land Management Plan Amended Winter 1985-86, page 5).

Supplemental TLMP Revision Draft EIS (TLMP SDEIS)

1. Sufficient Volume for KPC Contract Needs in TLMP SDEIS.

The TLMP SDEIS Chapter 3 section on timber (pages 3-354 and 355) provides the following summary statements in terms of the timber supply and the long-term timber sale programs.

If utility volume is included, Alternatives B, C, D, and P would meet or exceed the projected demand for National Forest timber (400 MMBF). Alternative A would provide 89 percent of the projected demand.

All of the first-decade Allowable Sale Quantity (ASQ, sawlog) in Alternative A would be needed to satisfy the long-term contracts; Alternative B would need 82 percent of the ASQ; Alternative C, 69 percent; Alternative D, 66 percent; and Alternative P, 75 percent.

These statements show that timber supply exceeds the level which is required to satisfy the long-term timber sale contracts (both APC and KPC). The data to support these statements is displayed in table 3-127 on page 3-355 and table 3-135 on page 3-371 of TLMP SDEIS. Table 3-135, in particular, shows the Long-Term and Short-Term Sales program volumes for the decade.

TLMP SDEIS also presents a discussion of timber supply within the KPC long-term contract sale area. As of October 1990 (the date of the TLMP SDEIS analysis), the remaining KPC Long-term Timber Sale Contract volume requirement was 2,443 MMBF, including utility (TLMP SDEIS , table 3-116, page 3-329, table 3-133, page 3-366). TLMP SDEIS alternatives

A, B, C, D, and P provide, respectively, 3,800 MMBF, 4,180 MMBF, 5,930 MMBF, 5,920 MMBF and 5,480 MMBF, including utility, from the KPC designated sale area (allotments E, F, and G (TLMP SDEIS, table 3-133, page 3-366). So all the alternatives in the TLMP SDEIS indicates more than sufficient timber remaining available in the designated KPC sale area to meet remaining contract volume requirements, consistent with resource protection requirements and other constraints projected in the document.

Further analysis in TLMP SDEIS is related to suitable-available acres. These are acres of forest that are identified as suitable for timber harvest and which are assigned management prescriptions within the TLMP SDEIS that allow consideration of timber harvest. For each alternative, TLMP SDEIS analysis confirms that the identified suitable-available acres contain more than enough potentially available timber within the sale area to meet the remaining volume commitment. These figures appear in table 3-134, pages 3-368 and 3-369, TLMP SDEIS and are summarized in the following table.

Table 3
Timber Volume Available Within The Contract Area

Alt.	Allotment Area	Suitable-Available (Acres)	Old Growth Standing Vol (MMBF)
A	E-Primary	141,194	2,098
	F-Primary	38,960	698
	G-Primary	101,493	1,499
	Rest of E	39,166	826
	Rest of F	129,743	2,891
	Rest of G	157,426	2,806
		-----	-----
		607,982	10,818
B	E-Primary	154,484	2,408
	F-Primary	42,193	793
	G-Primary	122,586	1,868
	Rest of E	45,926	984
	Rest of F	147,347	3,291
	Rest of G	153,245	2,678
		-----	-----
		665,781	12,022
C	E-Primary	169,584	2,772
	F-Primary	47,769	915
	G-Primary	139,423	2,223
	Rest of E	75,551	1,702
	Rest of F	234,232	5,367
	Rest of G	227,707	4,407
		-----	-----
		894,266	17,386
D	E-Primary	179,257	2,931
	F-Primary	49,889	939
	G-Primary	145,925	2,356
	Rest of E	47,065	1,010
	Rest of F	213,401	4,853
	Rest of G	240,790	4,676
		-----	-----
		876,327	16,765
P	E-Primary	161,578	2,586
	F-Primary	45,262	859
	G-Primary	135,737	1,401
	Rest of E	65,954	1,462
	Rest of F	217,768	4,981
	Rest of G	199,856	3,809
		-----	-----
		826,155	15,098

Furthermore, TLMP SDEIS displays the number of acres of tentatively suitable lands that are scheduled to be harvested over the planning horizon for each Management Area (TLMP SDEIS, table 3-138, page 3-378). This table indicates that the scheduling of the Lab Bay Project Area and other project areas within the KPC sale area to meet contract volume requirements over the next several years is anticipated. In addition, this table shows that there are adequate suitable acres in these Management Areas, scheduled to be harvested, to provide that volume. A portion of table 3-138 is displayed below in table 4. It displays, for Alternative P, the scheduled suitable acres by Management Area. Table 4 is similar to table 2 which showed the Management Areas scheduled for timber sale preparation during 1991-95. A comparison of these two tables indicates that the Management Areas identified as appropriate for timber harvest activities in the existing TLMP (as amended winter 1985-86) are also identified as appropriate in alternative P of TLMP SDEIS.

Table 4
TLMP SDEIS Alternative P Scheduled Acres (selected Management Areas)

Mgmt. Area	Name	Acres Sched- uled	Percent Of MA	Total MA Acres
K01 K02	Sumner (scheduled acres included in K01 and K03)	39,561	55.5	71,257
K03	El Capitan	50,923	46.8	108,805

2. Cumulative Effects

The TLMP SDEIS considers the cumulative effects for forest-wide acres managed for timber production for both the long-term and short-term timber sale programs. These effects are discussed on pages 3-371 through 3-381. Cumulative effects for other resources are discussed at the end of their respective sections.

Analysis points to the need to schedule harvest in VCUs assigned management prescriptions which permit consideration of timber harvest, including the VCUs within the Lab Bay Project Area. These VCUs in the current Forest plan, and in the draft revised Forest Plan would be needed to help meet the Tongass National Forest Allowable Sale Quantity, and also the contractual timber volume needs for the KPC Long-term Timber Sale. The forest-wide cumulative effects analysis in the TLMP SDEIS supports the conclusion that this harvest can be accomplished within existing and proposed revised TLMP standards and guidelines and other requirements for resource protection.

3. Subsistence

With the passage of the ANILCA, Congress recognized the importance of subsistence resources to rural residents of Alaska. In particular, prior to any disposition of public lands, an agency must first complete a subsistence effects evaluation, including consideration of the availability of other lands (ANILCA 810 (a)).

Based on a review of available harvest volumes for each VCU in the KPC contract area, it appeared that in order to meet contract volume commitments, most of the LUD III and IV VCUs would need some level of harvest prior to the end of the KPC contract in 2004. A tentative offering schedule was developed and approved for implementation based on this analysis. In short, almost all LUD III and IV VCUs in the KPC Long-term Sale would be scheduled for harvest within the next 10 to 15 years, indicating a level of impact to all subsistence use areas. However, the most significant impacts on the subsistence resource habitat would not occur until 20 to 30 years after the timber harvest when the second growth canopy closes. When those impacts to subsistence resources are viewed from a reference point 20 years in the future, the particular importance of which areas are scheduled first during a 5-year period appears to be minor.

In considering communities that may be most affected by any proposed timber harvest in the Lab Bay Project Area, Coffman Cove, Craig, Klawock, Point Baker, Port Protection, Whale Pass, and Wrangell appear to have the strongest cultural and subsistence ties to the area. Each community has its own level of reliance on subsistence as well as its own level of reliance on the Lab Bay Project Area for supplying subsistence resources. The following information about each communities subsistence use is a summary of more detailed information provided in chapters 3 and 4 of the Lab Bay Project EIS.

Coffman Cove Nineteen percent of Coffman Cove's deer came from the Project Area WAA's between 1988 and 1991. Analysis shows that there is an adequate number of deer to meet the current subsistence demand for deer now; however, at some point in the future it may be necessary to restrict the sport harvest of deer and give the rural communities preference.

Craig Nine percent of Craig's deer came from the Project Area WAA's between 1988 and 1991. Analysis shows that there is an adequate number of deer to meet the current subsistence demand for deer; however, at some point in the future it may be necessary to restrict the sport harvest of deer and give rural communities preference.

Klawock Eleven percent of Klawock's deer came from the Project Area WAA's between 1988 and 1991. Analysis shows that there is an adequate number of deer to meet the current subsistence demand for deer now; however, at some point in the future it may be necessary to restrict the sport harvest of deer and give rural communities preference.

Point Baker Eighty-two percent of Point Baker's deer came from the Project Area WAA's between 1988 and 1991. Analysis indicates that additional reductions in habitat capability will likely require restrictions on non-subsistence hunters in WAA's 1528 and 1529.

Port Protection Records indicate 100 percent of Port Protection's deer came from the Project Area WAA's between 1988 and 1991. Analysis indicates that additional reductions in habitat capability will likely require restrictions on non-subsistence hunters in WAA 1529.

Whale Pass Sixty-four percent of Whale Pass' deer came from the Project Area WAA's between 1988 and 1991. Analysis shows that there is an adequate number of deer to meet the current subsistence demand for deer now; however, at some point in the future it may be necessary to restrict the sport harvest of deer and give rural communities preference.

Wrangell Eighteen percent of Wrangell's deer came from the Project Area between 1988 and 1991. Analysis indicates that additional reductions in habitat capability will likely require restrictions on non-subsistence hunters in WAA's 1528 and 1529.

As a result of several considerations, including the availability of subsistence resources in undisturbed areas of Prince of Wales Island, including LUD I and LUD II areas within or adjacent to the Project Area, the relative independence of most communities from subsistence resources in the Project Area, as well as analysis contained in the Tongass Land Management Plan SDEIS, the Forest Service determined to schedule an environmental analysis of the Lab Bay Project Area ahead of other Project Area analyses. Subsequent Projects including Central Prince of Wales, Polk Inlet, North Revilla, Port Stewart, Vixen Inlet, Upper Carroll, Ratz Harbor, Heceta Island, Control Lake, Three Creeks, and Sea Level will undergo environmental analysis within the next 3 to 5 years.

Extensive forestwide cumulative effect analysis has been included in the TLMP SDEIS (TLMP SDEIS pages 3-628 through 3-765). That analysis, and the tables of data shown in appendix K of TLMP SDEIS are incorporated by reference into this document. The data in appendix K and L indicates subsistence hunting of deer and other uses in virtually every area of the Tongass with substantial quantities of harvestable timber. The following information is extracted directly out of the Tongass Land Management Plan Revision, Supplement to the Draft Environmental Impact Statement, pages 3-762 and 3-763:

In conducting the subsistence evaluation it is determined that, in combination with other past present and reasonably foreseeable future actions, none of the alternatives would pose a significant possibility of significant restriction for salmon, other finfish, marine mammals, invertebrates, plants, mountain goat, moose, waterfowl, sea birds, or other small game. Together these resources account for an average of 79 percent of the total harvest of subsistence resources (Kruse and Muth, 1990).

In considering the impacts of future actions that may take place under the proposed alternatives on deer, two types of analysis was conducted. Potential effects were first determined for those WAA's where residents have successfully harvested deer, then for those WAA's where residents have ever gone to harvest deer. Both 10 percent and 20 percent harvest levels of the deer population were used.

Considering only those WAA's where residents successfully harvested deer and assuming a harvest level of 10 percent of the population, there would be sufficient deer in all alternatives for the next 50 years to meet all subsistence needs for all communities except Gustavus, Hoonah, Kake, Pelican, Sitka, and Yakutat (appendix K). For these communities, there would be insufficient habitat capability to support harvest by all subsistence users (regardless of the community of origin). However, at 20 percent of the population, all subsistence needs for these communities would be met by all alternatives for the next 50 years (appendix K).

If instead of considering only those WAA's in which hunters were successful, we consider all WAA's ever hunted by community residents, then there would be sufficient deer habitat capability to support all subsistence hunters in the WAA's used for hunting by all subsistence communities except for Pelican and Gustavus. If instead of assuming a 10 percent harvest level, a 20 percent harvest level is used, there would be sufficient habitat capability to support all subsistence harvest in all WAA's used for hunting by all subsistence communities.

As a result of the analysis of the impacts of projects that would be permissible under each of the alternatives considered for adoption in the Forest Plan, it has been determined that all of the alternatives, if all permissible projects were fully implemented, have the potential to impact subsistence uses of deer, brown bear, and furbearers (specifically martens) due to potential effects of projects on abundance/distribution, and competition.

The analysis shown in chapter 3 of this Project EIS is supported by the analysis shown above in the TLMP SDEIS. The conclusion stated above, "it has been determined that all of the alternatives, if all of the permissible projects were fully implemented, have the potential to impact subsistence uses of deer. . .", supports the conclusion that any environmental analysis area within the Tongass would have a similar chance of having a significant possibility of a significant restriction on subsistence resources for Sitka Black-tailed deer, and other mammals.

The analysis for ANILCA section 810 are shown in the Subsistence section of chapter 4, in this EIS. The determinations made from the ANILCA section 810 analysis and findings are a part of the Record of Decision for this project and were developed in conjunction with the Final EIS.

Forest Plan Implementation

Review of Available Volume

A review was conducted of each VCU within the designated sale area for available volume. This analysis was based on computer inventories and Allowable Sale Quantity (ASQ) calculations from TLMP Draft Revision (1991a).

The review used the following guidelines to identify likely areas to schedule for environmental analysis in the near future:

- (1) Evaluate by area the total available volume within the designated sale area. Between 1991 and 1993, there is a need to identify a potential harvest of 700 MMBF.
- (2) Identify a tentative operating schedule which addresses volume to be offered from the Ketchikan Area.
- (3) Prepare a schedule of environmental analysis areas which shows how the Ketchikan Area will meet the tentative operating schedule from 1991 through the end of the contract. This schedule must provide a minimum of 615 MMBF 'current timber supply' through the end of the contract.

The results of the first step by the working group analysis are presented in table 5. The results of this volume review, further supported by TLMP revision information, provided the basis for scheduling the next series of environmental analyses.

Table 5
Available Volume By VCU In The KPC Contract Boundary (9/89).

Project Area	MA's in Analysis Area	(MMBF)
AA 1 Cental Prince of Wales		
Central Prince of Wales	K03 (Portion), K07, K08, K09, K10	291
Ratz (2nd Entry)	K09 (Portion)	40
Honker (2nd Entry)	K08 (Portion)	119
Luck Lake (2nd Entry)	K08 (Portion), K09 (Portion)	107
Tuxekan (2nd Entry)	K07	59
AA 2 - Lab Bay		
Lab Bay	K01, K03 (Portion)	85
North POW (2nd Entry)	K01, K03 (Portion)	103
AA 3 - Polk Inlet		
Polk Inlet	K17, K18	125
Chomondeley (2nd Entry)	K18, K19	75
AA 4 - North Revilla		
North Revilla	K32 (Portion)	200
AA 6 - Sea Level		
Sea Level	K35	67
AA 7 - Control Lake		
Control Lake	K05, K08	187
AA 8 - Upper Carroll		
Upper Carroll	K32 (Portion)	130
AA 9 - Three Creeks		
Three Creeks	K39	49
AA 10 - Vixen Inlet		
Vixen Inlet	K29	175
AA 11 - Port Stewart		
Port Stewart	K30	135
AA 12 - Lower Carroll		
Lower Carroll	K34, K35	41
AA 13 - South POW		
South Pow	K28	80
AA 14 - Heceta		
Heceta	K11	75
AA 15 - Chasina		
Chasina	K24	166
AA 16 - Moira		
Moira	K25	119

Analysis Area Reviews

For each area identified as having sufficient volume available to consider for further environmental analysis at this time, a review was conducted to decide which areas to schedule first, considering the current TLMP and proposed revised TLMP schedule, and other factors described below. The results of this review and supporting reasons for each area appear below:

Central Prince of Wales - This project area is located within TLMP management areas K03, K07, K08, K09 and K10. The area has had extensive harvesting in the past. No additional log transfer facilities (LTF's) are required to harvest timber in this area. The majority of the road system is already in place, only limited additional road construction would be required. The area is entirely within the primary sale area. This area was given the highest priority due to its location within primary sale area, ease of access, prior harvest and no additional LTF construction.

Polk Inlet - This project area is located within TLMP management area K17 and K18. The K17 portion of the area is located within the primary sale area. The area has had extensive harvesting in the past. Roads have been developed previously into the area but construction is difficult due to the terrain. A logging system transportation analysis was completed for the area as part of the 1989-1994 EIS. Three LTF's will be required enter the area but they have already been approved for construction under the 1989-1994 EIS and their required permits have been acquired or in process. The area was given a high priority since it has a large portion located within primary sale area, has had previous harvest, and has had prior road development. The area was not given highest priority due to LTF construction and difficult access.

North Revilla - This project area is located within TLMP management area K32. The area has had extensive harvesting in the past. It is located within the primary sale. A large amount of new road construction will be needed in the area. Road construction into the area is difficult due to steep terrain and unstable slopes. Nine LTFs will be required to access the area, of which three will require new construction. The area was given high priority since it is located within the primary sale area, has had prior harvest and road construction, and a logging system transportation analysis had already been completed for the area. It was not given highest priority due the requirement of three new LTFs and difficult road construction.

Lab Bay - This project area is located within TLMP management area K01 and K03. The area has had extensive harvesting in the past. One additional LTF will be required, other timber will utilize two existing LTF's. The vast majority of timber will have to pass through these two existing LTFs. The limited number of additional LTF's in the area could create a bottle neck getting wood from the field into the water. The area was given a high priority since it is in the primary sale area, has current road access, and has had previous harvest. It was not given highest priority due to a limited number of LTF's to put logs into the water.

Sea Level - This project area is located within TLMP management area K35. The area has had limited harvesting in the past. The area is within the KPC long term contract, however it is outside primary sale area boundary. Road construction is difficult in the area but no new LTF's are required to access the timber. This area was given a moderate priority for scheduling due to being within the timber sale contract and not requiring any new LTF's.

Control Lake - This project area is located within TLMP management area K08 and K05. The area has had extensive harvesting in the past. No additional log transfer facilities (LTF's) are required in to harvest timber in this area. The majority of the road system is already in place, only limited additional road construction would be required. The area is within the long-term contract area, but not within the primary sale area portion. This area was given a moderate priority since it had ease of access, prior harvest and no additional LTF construction but was not within the primary sale area.

Heceta - This project area is located within TLMP management area K11. The area has had extensive harvesting in the past. The area is within the KPC long term contract, however

it is outside primary sale area boundary. Remaining volume available for harvest in the area is low. The project area is a small island off the west coast of Prince of Wales Island and faces the open ocean. This makes the logistics associated with timber harvest activities difficult. This area was given a moderate priority for scheduling due not being in the primary sale area, low potential volume, and difficult logistic problems.

Upper Carroll - This project area is located within TLMP management area K32. The area has had limited harvesting in the past. The area is within the KPC long term contract, however it is outside primary sale area boundary. Road access in the area is difficult. One new LTF will be required. Road construction associated with this project may help complete the linkage for the transportation utility corridor planned for the area. This area was given a moderate priority for scheduling despite the potential transportation utility corridor due difficult access and not being in the primary sale area.

Three Creeks - This project area is located within TLMP management area K39. The area has had limited harvesting in the past. The area is immediately behind the community of Ketchikan and as is heavily used for recreation. The area is within the KPC long term contract, however it is outside primary sale area boundary. This area was given a moderate priority for scheduling despite good timber harvest economics due to low potential volume and high recreation values.

Vixen Inlet - This project area is located within TLMP management area K29. The area has had limited harvesting in the past. There is potentially a large amount of volume available in the area, although it is somewhat scattered. This will require a high ratio of miles of road construction per MBF of timber harvest. The area is within the KPC long term contract, however it is outside primary sale area boundary. The project is on Cleveland Peninsula which has important wildlife and recreation values. There is currently no road access into the area. There are no existing LTF's and one new LTF would be required. This area was given a moderate priority for scheduling due the large amount of potential volume and since it is within the long term sale boundary. It was not given a high priority since it is not within the primary sale area and has high recreation and wildlife values.

Port Stewart - This project area is located within TLMP management area K30. The area has had limited harvesting in the past. There is potentially a large amount of volume available in the area, although it is somewhat scattered. This will require a high ratio of miles of road construction per MBF of timber harvest. The area is within the KPC long term contract, however it is outside primary sale area boundary. The project is on Cleveland Peninsula which has important wildlife and recreation values. There is currently no road access into the area. There are no existing LTF's and one new LTF would be required. This area was given a moderate priority for scheduling due the large amount of potential volume and since it is within the long term sale boundary. It was not given a high priority since it is not within the primary sale area and has high recreation and wildlife values.

Lower Carroll - This project area is located within TLMP management area K34 and K35. The area has had limited harvesting in the past. The area is within the KPC long term contract, however it is outside primary sale area boundary. The area was recently analyzed as part of the Shelter Cove EIS. As part of that EIS a logging system transportation analysis was developed for the area. Remaining volume potentially available for harvest from this area is low. This area was given a low priority for scheduling due to not being in the primary sale area, low amount of potential volume, and having been recently analyzed as part of another EIS.

South POW - This project area is located within TLMP management area K28. The area has had extensive harvesting in the past. The area is within the KPC long term contract,

however it is outside primary sale area boundary. There is no existing logging system transportation analysis available for the area. The area would require the construction of three new LTF's. Road construction in the area would be very difficult. The quality and quantity of timber in the area is not very high. The result is that timber harvest in the area is likely to be economically marginal. As a result of these factors, this area was given a low priority for scheduling.

Results of Analysis

Upon completion of the above analysis, four Project Areas were identified and scheduled for environmental analysis. The four timber projects were initiated which had a high priority and were within the KPC "Primary Sale Area". The KPC contract provides direction to seek to find timber supplies within the Primary Sale Area before seeking volume within contingency areas. These four projects were needed to produce sufficient volume to provide KPC with 205 MMBF for the 1993 logging season, as well as to provide a three-year timber supply of 615 MMBF. There WAS expected to be 120 MMBF of timber volume remaining from previous projects which will be available to KPC by the beginning of the 1993 operating season. Therefore, these four timber projects need to produce a total of 700 MMBF, which, when combined with the 120 MMBF currently available, will provide volume for the 1993 logging season, plus a three-year timber supply.

This 700 MMBF was divided among the four timber projects based on the size of the project areas, as well as on their relative abilities to produce timber volume in an expedient fashion. Other factors considered in making this volume determination for the Lab Bay project included: (1) this harvest level is consistent with the sale schedule in the TLMP (1979a, as amended); (2) sufficient volume has been determined to be available in the Project Area; (3) there is an extensive road network in place; (4) the number and location of Log Transfer Facilities (LTF's) is sufficient to handle this volume of timber within a three-year time frame; (5) there are existing KPC-operated logging camps within the area to handle this volume; and (6) the current Forest Plan (TLMP 1979a, as amended) calls for harvest in this Project Area.

When these four projects were initiated there was expected to be approximately 120 MMBF of timber volume remaining from a previous NEPA project (1989-94 LTS EIS) which would be available to KPC by the time the Lab Bay Final EIS is released. However, once these four projects were underway, delays were experienced in their completion. These delays were such that only limited volume could be made available from them for the 1993 logging season. This also had an effect of delaying when a 3 year timber supply could be achieved. In an effort to provide enough volume for the 1993 logging season, and to stay on schedule for attaining a three year timber supply, four independent sales were released to KPC. These sales total 107 MMBF and include: 12-Mile (12 MMBF), Frosty (33 MMBF), Shelter Cove (17 MMBF), and Starfish (45 MMBF). Frosty and Starfish are located on the Wrangell District of the Stikine Area.

Subsequently, a schedule of additional project level environmental analysis was identified for fiscal years 1993 through 2000 to complete the Long-term Sale. This schedule has been reviewed and reaffirmed and is shown in the following memo.



United States
Department of
Agriculture

Forest
Service

Region 10

Tongass National Forest
Ketchikan Area
Federal Building
Ketchikan, AK 99901

Reply To: 1950

Date: April 26, 1993

Subject: Timber Sale NEPA Documents

To: Forest Supervisor

The following schedule of NEPA documents represents the proposed NEPA analysis needed to fulfill the timber sale action plan. This memo is intended to update the October 10, 1992 sale schedule memo.

KETCHIKAN AREA DRAFT SALE SCHEDULE
NEPA DOCUMENT SUMMARY

Project Name	Begin Project (Gate 1)	Issue NOI (Gate 2)	Issue DEIS (Gate 2)	Issue FEIS (Gate 3)	Projected Volume
CPOW				7/93	290
North Revilla				7/93	200
Polk Inlet			6/93	9/93	125
Lab Bay			10/93	4/94	85
Control Lake	3/93	7/93	5/94	11/94	187
Upper Carrol	3/93	7/93	5/94	11/94	130
Heceta	3/93	7/94	5/95	11/95	75
Sea Level	3/93	7/94	5/95	11/95	67
Three Creeks	3/93	7/94	5/95	11/95	49
Vixen Inlet	5/93	7/95	5/96	11/96	175
Port Stewart	5/93	7/95	5/96	11/96	135
Chasina	3/96	7/96	5/97	11/97	166
Tuxekan	3/96	7/96	5/97	11/97	59
Ratz	3/96	7/96	5/97	11/97	40
North POW	3/97	7/97	5/98	11/98	103
Moirra	3/97	7/97	5/98	11/98	119
South Pow	3/98	7/98	5/99	11/99	80
Honker	3/98	7/98	5/99	11/99	119
Luck Lake	3/99	7/99	5/00	11/00	107
Lower Carrol	3/99	7/99	5/00	11/00	41
Chomondeley	3/99	7/99	5/98	11/00	75

David Arrasmith



DAVID ARRASMITH
USDT Planning Staff Officer

FS-8200-28(7-82)

Comments recieved on the Draft Environmental Impact Statement expressed a concern regarding the sustainability of the timber harvest levels. The concern was made for the Ketchikan Area as whole, as well as the distribution of the harvesting within the Area. To address these concerns additional analysis was performed to estimate Ketchikan Area wide timber harvest levels over the next 50 years by Management Area. This analysis was done by Management Area to give a spatial indication of where the harvests would occur. It was done for 50 years since this is the estimated period until the second growth produced by earlier cutting would become available for harvest once again. The analysis was done using the suitable land base identifeid in Alternative P in the TLMP Revision as the best indicator of future land allocations affecting lands available for harvest. This analysis also assumes that; 1) price increases for wood products will occur resulting in making economically marginal lands possible to harvest, and 2) there will be no further reductions in the suitable land base due to legislation, Forest Planning, or other factors. The results of this analysis are displayed below in both millions of board feet per decade (MMBF/Decade) and millions of cubic feet per decade (MMCF). The analysis indicates that although timber harvest levels can be sustained Ketchikan Area wide, there will be some shifts through time as to where that harvest incurs.

Table 6
Distribution of Ketchikan Area's Timber Harvest Over the Next 50 Years
(MMBF/Decade & MMCF/Decade)

MANGEMENT AREA	1995-2004	2005-2014	YEARS 2015-2024	2025-2034	2035-2044
K01 Sumner	85/ 20	151/ 33	82/ 20	141/ 33	154/ 36
K03 El Capitan-Whale Pass	142/ 33	97/ 22	144/ 37	168/ 40	33/ 8
K04 Kosciusco East	0/ 0	47/ 10	63/ 15	35/ 8	28/ 7
K05 Kosciusco West	0/ 0	246/ 56	125/ 29	27/ 6	53/ 12
K07 Tuxekan Narrows	190/ 44	212/ 46	305/ 74	258/ 61	112/ 29
K08 Honker Sweetwater	331/ 77	127/ 28	97/ 24	233/ 54	237/ 60
K09 Clarence Strait	145/ 34	78/ 17	179/ 44	213/ 50	105/ 28
K10 Thorne Bay	30/ 7	56/ 13	90/ 23	61/ 15	33/ 8
K11 Heceta	75/ 17	236/ 54	91/ 23	49/ 11	28/ 7
K14 Craig	0/ 0	124/ 28	98/ 23	283/ 67	231/ 63
K15 Control	67/ 16	78/ 17	28/ 7	146/ 34	54/ 13
SUBTOTAL Thorne Bay R.D.	1065/248	1452/324	1302/319	1614/379	1068/271
K17 Hollis	20/ 5	45/ 11	36/ 9	131/ 31	129/ 32
K18 Scowl - W. Cholmondeley	155/ 36	212/ 46	142/ 32	50/ 11	168/ 46
K19 Spiral - Clover	25/ 6	13/ 3	0/ 0	3/ 1	46/ 13
K20 Sumez	0/ 0	39/ 9	5/ 1	83/ 19	30/ 7
K21 Sukkwan	0/ 0	18/ 4	33/ 8	229/ 52	199/ 52
K22 Dall Island	0/ 0	10/ 2	12/ 3	37/ 9	59/ 15
K24 Cholmondeley Sound	166/ 38	126/ 29	26/ 6	45/ 9	2/ -
K25 Moria	119/ 27	185/ 46	26/ 6	40/ 9	29/ 8
K28 Kegan	80/ 19	49/ 13	5/ 1	5/ 1	0/ 0
SUBTOTAL Craig R.D.	565/131	697/163	285/ 66	623/142	662/173

MANGEMENT AREA	1995-2004	2005-2014	YEARS 2015-2024	2025-2034	2035-2044
K29 North Cleveland	175/ 43	6/ 2	169/ 40	23/ 5	16/ 4
K30 South Cleveland	135/ 33	15/ 3	180/ 43	49/ 11	31/ 7
K32 West Revilla	330/ 78	83/ 19	85/ 23	66/ 16	287/ 68
K34 Swan Lake	0/ 0	4/ 1	9/ 2	0/ 0	0/ 0
K35 Carrolll - Thorne	75/ 18	102/ 24	275/ 66	28/ 7	116/ 27
K39 George Inlet	82/ 19	137/ 32	42/ 10	20/ 4	45/ 11
SUBTOTAL Ketchikan R.D.	797/191	347/ 81	760/184	186/ 43	495/117
K44 Hyder	0/ 0	1/ -	9/ 2	15/ 4	20/ 5
SUBTOTAL Misty Fiords	0/ 0	1/ -	9/ 2	15/ 4	20/ 5
GRAND TOTAL Ketchikan Area*	2427/569	2495/569	2354/569	2437/569	2246/569

* May not sum to total due to rounding.



Appendix B

Units Dropped or Deferred from Unit Pool

Table B-1

Units Deferred From Analysis During Paper Plan Development and Initial Field Evaluations

VCU Unit No.	When Removed	Drop / Defer	Logging Feasibility / Cost	Stream & Estuary Buffer	Adjacency Requirement	89-94 Contingency Unit	Visuals	High Hazard Soils	State Selection (Proposed)	Cumulative Watershed	Silvicultural Limits	Proportionality
527-225	A	Defer								X		
529-264	F	Drop		X								
529-273	A	Defer								X		
529-275	A	Defer								X		
529-281	P	Defer			X							
529-283	A	Drop		X								
530-201	F	Drop									X	
530-233	P	Defer			X							
530-253	A	Defer								X		
531.1-201	P	Defer			X							
531.1-202	P	Defer			X							
531.1-204	A	Defer										X
531.1-214	P	Defer	X									
531.1-223	A	Defer										X
531.1-225	P	Defer			X							
531.1-231	A	Defer										X
531.1-232	A	Defer										X
531.1-233	A	Defer										X
531.1-236	F	Defer	X									
531.1-239	A	Drop		X								
531.1-249	F	Drop		X								
531.1-252	A	Drop		X								
531.1-253	A	Defer					X					
531.1-255	A	Defer										X
531.1-256	A	Defer					X					
531.1-258	A	Defer										X
531.1-259	A	Defer										X
532-200	P	Defer	X									
532-201	P	Defer	X									
532-210	F	Defer					X					
532-230	P	Drop		X								
532-232	A	Drop		X								
533-253	A	Drop						X				
534-202	A	Defer										X
534-204	A	Defer										X
534-218	F	Defer				X						
534-224	A	Defer					X					
534-227	A	Defer										X
534-229	A	Defer										X
534-230	A	Defer										X
534-231	F	Defer			X							
534-232	F	Defer	X									

Appendix B

Table B-1, continued

Units Deferred From Analysis During Paper Plan Development and Initial Field Evaluations

VCU Unit No.	When Removed	Drop / Defer	Logging Feasibility / Cost	Stream & Estuary Buffer	Adjacency Requirement	89-94 Contingency Unit	Visuals	High Hazard Soils	State Selection (Proposed)	Cumulative Watershed	Silvicultural Limits	Proportionality
534.1-201	A	Defer										X
534.1-207	A	Defer										X
534.1-208	F	Defer	X									
534.1-210	F	Defer	X									
535-211	A	Defer										X
535-212	P	Defer	X									
536-201	F	Defer				X						
536-207	P	Defer				X						
536-218	A	Defer										X
536-220	P	Defer				X						
536-223	A	Defer										X
537.1-207	P	Defer				X						
537.1-218	P	Defer					X					
537.1-219	F	Defer				X						
537.1-220	A	Drop							X			
537.1-221	A	Drop							X			
537.1-222	A	Defer										X
537.1-223	A	Defer										X
537.1-225	A	Defer								X		
537.1-226	A	Defer										X
538-202	A	Defer										X
538-216	A	Defer										X
538-218	A	Defer				X						
538-219	A	Defer										X
538-220	A	Defer										X
538-221	P	Defer		X								
538-224	A	Defer										X
538-225	A	Defer										X
539-219	F	Defer				X						
540-202	F	Defer	X									
540-207	F	Defer				X						
551-231	A	Drop		X								
551-234	A	Defer	X									
Total			10	9	14	1	5	1	2	5	1	27

Notes: (1) Some units may have multiple reasons for being dropped/deferred.

When Removed: P = Preliminary Planning
F = Field Studies
A = Analysis

Appendix C

Unit Specific Mitigation Measures

Site-Specific Mitigation Measures Incorporated Into Unit and Road Design

Mitigation Measure	Description	No. of Units Affected in Each Alternative			
		2	3	4	5
Karst					
K1	Geotechnical investigation, including dye tracing required to evaluate potential adverse effects on recharge area to domestic water supply.	2	0	0	2
K2	Modify unit boundary to avoid slopes in excess of 70% or to retain areas of greater than 70% on recharge area to domestic water supply.	12	0	5	8
K3	Achieve partial suspension due to steep slopes and/or thin soils on karst.	7	0	4	5
K4	Individual tree selection (Harvest Type I) due to high density of significant karst features (caves, vertical shafts, sinkholes, or insurgences).	12	0	3	9
K5	Avoid yarding over significant features (caves, vertical shafts, sinkholes, or insurgences).	12	1	8	7
K6	Maintain minimum 100 foot windfirm buffers around caves, vertical shafts, and other significant karst features.	34	0	20	21
K7	Directionally fall away from significant karst features (caves, vertical shafts, sinkholes, or insurgences)	17	1	7	12
K8	Ketchikan Area karst resource specialist should review unit during final layout.	36	1	21	23
Roads on Karst					
Kr1	Geotechnical investigation (dye tracing) required to evaluate potential adverse effects of road construction on recharge area to domestic water supply.	2	0	0	2
Kr2	Geotechnical investigation required to evaluate potential adverse effects of blasting on significant karst features, or to determine stability of road across karst.	3	0	2	2
Kr3	Avoid filling or channeling of road drainage into caves, vertical shafts, sinkholes, or insurgences.	10	1	8	4
Kr4	Avoid construction over significant karst features (caves, vertical shafts, sinkholes, or insurgences).	12	2	9	8
Kr5	Realign road to avoid significant features (caves, vertical shafts, sinkholes, or insurgences).	3	2	2	2
Kr6	Road eliminated due to karst concerns.	2	1	2	1
Minerals					
M1	Protect all known mineral improvements, such as mine claim markers.	1	1	1	1
M2	Reasonable access will be provided for mining claims.	6	5	6	6
Fish, Water Quality, and Soils					
F1	Modify unit boundaries/design to avoid very high mass movement areas and areas dominated by thin organic soils, or to minimize soil displacement, erosion, and sedimentation into streams. (BMP 13.2, 13.5)	63	40	41	42
F2	Avoid road construction in areas of very high mass movement potential (BMP 14.2, 14.7).	2	2	0	1
F3	Require partial to full suspension logging systems to minimize high mass movement potential, and implement measures to minimize soil disturbance, erosion, or sedimentation into streams including seeding, slashing, or other stabilization measures (BMP 12.7, 13.5, 13.7, 13.9, 13.12).	63	43	43	42

Site-Specific Mitigation Measures Incorporated Into Unit and Road Design

Mitigation Measure	Description	No. of Units Affected in Each Alternative			
		2	3	4	5
F4	Modify logging system to avoid or minimize damage to designated streams, muskegs or other wetlands (BMP 12.5, 13.2, 13.3, and 13.15).	24	15	18	15
F5	Establish no-harvest and selective-cut buffers a long streams and around lakes to protect riparian management areas, fisheries, or for protection of temperature sensitive streams (BMP 12.6).	44	31	27	28
F6	Require split yarding and/or directional felling along selected Class III streams without buffers to maintain streambank stability and prevent sedimentation into stream channel (BMP 13.16).	23	19	13	17
F7	Implement measures to reduce surface erosion and drainage interruption related to transportation including water barring and cross-draining roads using ditches and culverts to prevent water running long distances over roads, closure, seeding and fertilizing cut and fill slopes, and locating and designing landings for good drainage and dispersion of water (BMP's 12.7, 12.11, 13.10, 14.3, 14.5, 14.8, 14.9, 14.10, 14.11, 14.12, 14.13)	46	29	35	31
F8	Establish timing restrictions for instream road construction activities for protection of anadromous and resident fish in Class I, Class IIa, and other designated streams. Includes in channel operations, stream crossings on temporary roads, bridge and culvert design and installation. (BMP 14.6, 14.10, 14.14, 14.16, 14.17).	43	24	27	30
F9	Implement BMP's for protection of water quality, riparian areas, and fisheries habitat on all stream crossings including riparian area protection, streambank protection, stream channel protection, road closure, and timely implementation of erosion control measures (BMP 12.6, 12.7, 12.11, 13.16, 14.9, 14.11).	49	28	32	31
F10	Provide no harvest buffers on HGC streams within and adjacent to units to avoid exceedance of HGC harvest threshold.	11	9	4	10
Vegetation and Timber					
T1	Conduct partial-cut harvesting to provide shelter and retain a seed source in the unit, and/or to help maintain the cedar component in the future stand.	5	5	4	3
T2	Retain at least 2 yellowcedar trees per acre to provide an additional seed source within the unit.	18	18	1	18
T3	Implement measures such as retention areas or partial cutting to reduce regeneration concerns due to high elevation, low site productivity, shallow or saturated soils.	15	5	7	11
Wildlife					
W1	Provide for greater structural diversity on a stand level by retaining a minimum level of snags and green tree replacements. Typically, the minimum level will be met by retaining trees along unit boundaries and between settings. Identified for third and fourth order watersheds that currently meet or exceed the minimum snag density guidelines, and are not adjacent to extensive past harvest (Concern Level 1).	98	62	58	68
W2	Provide for greater structural diversity on a stand level by retaining a minimum level of snags and merchantable green tree replacements throughout the rotation. Typically, the minimum level will be met by retaining trees along stand edges and between setting boundaries, or within	18	15	12	12

Site-Specific Mitigation Measures Incorporated Into Unit and Road Design

Mitigation Measure	Description	No. of Units Affected in Each Alternative			
		2	3	4	5
	leave tree islands. Identified for third and fourth order watersheds that are at or near the minimum snag density guideline, or are adjacent to extensive past harvest (Concern Level 2).				
W3	Provide for greater structural diversity on a stand level by retaining a minimum level of snags and merchantable green tree replacements throughout the rotation. Typically, the minimum level will be met by retaining leave tree islands or by partial cut prescription. Identified for third and fourth order watersheds that are currently below the minimum snag density guideline, or are adjacent to extensive past harvest (Concern Level 3).	9	6	9	5
W4	Restrict the timing of helicopter logging and/or helicopter flight paths and road construction blasting near bald eagle nest sites when occupied. During final layout identify those eagle nests that are in close proximity to harvest units and ensure maintenance of buffer zones.	16	10	11	12
W5	Conduct goshawk surveys for harvest units that are within high probability habitat or where past sightings have occurred. Implement Region 10 management guidelines, as appropriate, if nesting is identified.	41	36	24	28
W6	Implement road closures immediately after harvest to minimize human disturbance to wildlife and road access by hunters in specific areas.	104	74	67	70
W7	Evaluate potential for disturbance and restrict harvest and road construction activities in areas and during time periods when Vancouver Canada Goose nesting or trumpeter swan wintering may be disturbed.	18	13	13	9
W8	Consult with District Wildlife Biologist regarding timing of harvest and road construction.	3	3	1	3
W9	Restrict Forest Service authorized boat traffic and aircraft flights in the vicinity of the Stellar sea lion haulout at Kasaan Point on Grindall Island.	*	*	*	*
W10	Restrict Forest Service authorized boat traffic and aircraft flights in the known vicinity of humpback whales and properly dispose of cables from inactive LTF sites.	*	*	*	*
Visual Resources					
V1	Modify boundary of harvest unit to meet proposed VQO's.	5	3	2	5
V2	Conduct partial cutting of unit to minimize visual contrast with adjacent areas.	6	4	4	5
V3	Leave behind all nonmerchantable trees after clearcutting to minimize visual contrast with adjacent areas.	1	0	2	0
V4	Conduct partial cutting along harvest unit and setting boundaries to reduce visual contrast with adjacent areas.	7	3	4	6
V5	Manage views by maintaining islands or strips of trees to visually screen harvest units from saltwater or roadside where appropriate.	21	11	8	15
Cultural Resources					
C1	Provide for mitigation of indirect effects to cultural resource sites near proposed harvest units and roads.	1	1	1	1

Source: Project Planning Record

* Applies to project level implementation

Unit-Specific Mitigation Measures

[illegible]

Unit-Specific Mitigation Measures

[illegible]

Unit-Specific Mitigation Measures

[illegible]

Appendix D

Harvest Type Descriptions and Harvest Information

Harvest Type Descriptions and Harvest Information for the Lab Bay Project Area

Type A

Clearcut which leaves unmerchantable trees and safe snags within 50 to 100 feet of unit edges and between internal setting boundaries. Prescribed in landscape zones where there are few structural concerns, or where windthrow, disease, and/or logging systems make partial cutting unfeasible.

Type B

Clearcut which leaves some merchantable reserve trees and all unmerchantable trees along the unit edges and between internal setting boundaries. Prescribed in landscape zones where structural concerns exist, but windthrow, disease, and/or logging systems make partial cutting unfeasible. Also used outside of critical landscape zones where previous harvest has left little structure in the area. Selection of leave trees is based on windfirmness and logging safety standards. Leave trees along unit boundaries are retained in a range of size classes to provide for a multi-storied canopy condition and reduce the potential for windthrow.

Type C

Clearcut which leaves unmerchantable trees and safe snags throughout unit. Generally prescribed only where helicopter yarding is used.

Type D

Clearcut where groups or strips are retained between patches of clearcut timber. Strips are spaced relatively evenly across the area and typically may be harvested once regeneration has reached the LUD's specified height and stocking requirements. Groups typically will be left throughout the rotation to serve as wildlife islands and/or increase structural diversity. Prescribed in landscape zones where visual, wildlife and/or structural concerns exist, but windthrow, disease, and/or logging systems make partial cutting unfeasible. Reserve tree islands typically would occur in areas where there are resource concerns or where visual screening would be enhanced.

Type E

Overstory removal will generally remove the larger size/height classes down to a specific diameter limit in order to manage a viable understory. Designed to release advance regeneration and enhance future structural diversity. Prescribed in areas where good advance regeneration exists, where windthrow limits partial cutting feasibility, and/or where retention may benefit wildlife, visual, or slope and soils concerns.

Type F

Seedtree harvest which will retain dominant and co-dominant trees in clumps or scattered across the unit to provide an additional seed source in order to enhance regeneration stocking and/or species diversity. Prescribed in landscape zones where there are structural concerns and low windthrow potential; and where desirable species are available to enhance species stocking and/or diversity. Trees may be retained throughout the rotation but typically may be removed after the regeneration stocking and height is sufficient to meet stocking requirements if other resource concerns permit.

Type G

Shelterwood harvest where 30% of the merchantable tree canopy is left scattered across the unit to provide a partially shaded micro-environment. Intentions include additional thermal protection and seed source. Prescribed in landscape zones where there are structural concerns and/or partial retention VQO and high VAC. Trees may be retained throughout the rotation but typically may be removed after the regeneration stocking and height is sufficient to meet visual and stocking requirements if other resource concerns permit.

Type H

Shelterwood harvest where 50% of the merchantable tree canopy is left scattered across the unit to provide a partially shaded micro-environment. Intentions include additional thermal protection and seed source. Prescribed in landscape zones where there are structural concerns and/or partial retention VQO and low VAC. Trees may be retained throughout the rotation but typically may be removed after the regeneration stocking and height is sufficient if other resource concerns permit.

Type I

Group selection and/or single tree selection; techniques to achieve uneven-aged structural management objectives by removal of trees in all size classes either singly or in groups. Prescribed in landscape zones where there are significant structural concerns, within selective harvest lake buffers, or where high elevation regeneration concerns exist. Individual tree selection or carefully designed groups are designed to meet retention VQO and typically will be applied by helicopter logging systems.

Silvicultural System	Harvest Type Designation	Canopy Retention (%)	Unit Volume Reduction (%)
Clearcut	Type A	5	0
Clearcut	Type B	5	5
Clearcut	Type C	5	0
Clearcut (strip or group)	Type D	5-50	5-50
Overstory Removal	Type E	10-15	10
Seed Tree	Type F	10-15	10
Shelterwood	Type G	30	30
Shelterwood	Type H	50	50
Group/Single Tree Selection	Type I	40-75	40-75

Table D-1

Acres of Proposed Harvest by Harvest Type

Unit	Acres by Harvest Type									Total Acres	Unit Volume Retention %	Total Unit Volume (MBF)
	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I			
527-206		40.6		8.7				20.4		69.7	19	1,696
527-224				35.6						35.6	15	977
527-226		44.0			7.7					51.7	6	1,555
527-227									6.6	6.6	40	115
527-228									55.4	55.4	65	570
527-229				25.8						25.8	15	610
528-204						13.7				13.7	10	298
528-212			11.8							11.8	0	327
528-213				13.1						13.1	15	367
528-250	4.2			33.8						38.0	31	687
528-251		22.7								22.7	5	655
528-280		41.9								41.9	5	836
529-202		79.7		8.7						88.4	8	2,154
529-212				14.3	18.1					32.4	12	769
529-214		13.2		11.9	10.2					35.2	10	765
529-215				14.8			9.1			23.9	21	469
529-218									12.1	12.1	65	77
529-220				35.2						35.2	15	536
529-223		18.5								18.5	5	483
529-249	12.4									12.4	0	242
529-256		14.9								14.9	5	178
529-257	7.1									7.1	0	118
529-259		16.6								16.6	5	380
529-270				108.8						108.8	15	3,250
529-282	27.9									27.9	0	672
529-284						20.0				20.0	10	223
529-285	34.1									34.1	0	865
529-286		38.3								38.3	5	1,596
530-200						17.4				17.4	10	205
530-203			11.2							11.2	0	167
530-226				60.2						60.2	15	1,622
530-228	24.9			10.7						35.6	5	1,147
530-230				26.0				2.1		28.1	18	670
530-234		45.2								45.2	5	1,049
530-236		14.0								14.0	5	311
530-240				38.7						38.7	15	572
530-241		33.6								33.6	5	1,401
531.1-205		31.4	37.2							68.6	2	1,891
531.1-208				47.0						47.0	15	999
531.1-213									87.9	87.9	50	1,295
531.1-220				21.6						21.6	15	561
531.1-221		10.4								10.4	5	222
531.1-229									47.9	47.9	60	529
531.1-230		45.6		30.5						76.1	9	2,081

Appendix D

Table D-1(continued)

Acres of Proposed Harvest by Harvest Type

Unit	Acres by Harvest Type									Total Acres	Unit Volume Retention %	Total Unit Volume (MBF)
	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I			
531.1-235									19.1	19.1	75	63
531.1-241			55.3							55.3	0	740
531.1-242						26.5				26.5	10	310
531.1-257	5.6									5.6	0	163
532-219						38.2				38.2	10	492
532-220						21.8				21.8	10	222
532-221	21.4									21.4	0	270
532-223						25.1				25.1	10	275
532-228				30.6						30.6	15	774
532-229				54.2						54.2	15	1,231
532-231						42.7				42.7	10	914
533-201		25.1		93.9						118.9	13	3,300
533-205				71.7						71.7	14	1,714
533-222		63.2			14.1					77.4	6	1,832
533-224				52.1						52.1	15	1,060
533-228		39.3								39.3	5	1,032
533-229									26.6	26.6	50	173
533-245		28.1							13.8	41.9	17	1,156
533-246		49.0								49.0	5	1,849
533-247				68.5						68.5	10	1,803
533-248				28.9						28.9	10	755
533-249	15.9									15.9	0	473
533-250	32.6									32.6	0	749
533-251		47.3								47.3	5	1,251
533-252									43.1	43.1	50	668
533-254									10.0	10.0	50	157
533-255									8.8	8.8	50	121
533-256									4.0	4.0	50	52
533-257									11.2	11.2	50	186
533-258									10.4	10.4	50	166
533-259									9.9	9.9	50	156
534-218		38.0								38.0	5	872
534-225		37.3								37.3	5	803
534-226				40.7						40.7	10	487
534-228				51.5						51.5	15	970
534.1-204		10.2								10.2	5	136
534.1-211	35.4									35.4	0	774
534.1-212		37.3								37.3	5	993
535-204				39.2						39.2	10	463
535-205				33.9						33.9	10	404
535-207	8.6									8.6	0	126
535-208				69.3						69.3	20	1,229
535-209				36.8						36.8	20	642
536-208		35.1		24.9						60.0	11	901
536-209							39.8			39.8	30	803

Table D-1 (continued)

Acres of Proposed Harvest by Harvest Type

Unit	Acres by Harvest Type									Total Acres	Unit Volume Retention %	Total Unit Volume (MBF)
	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I			
536-211				29.6						29.6	50	461
536-217				28.7					61.4	90.1	42	936
537.1-208	25.3									25.3	0	612
538-208		20.5								20.5	5	407
538-210							30.8			30.8	30	383
538-223				32.9						32.9	15	754
539-206		18.8								18.8	5	232
539-210			63.8							63.8	0	1,197
539-215				31.5						31.5	15	339
539-220		28.3								28.3	5	360
539-221	27.2			20.0						47.2	6	549
539-222					82.8					82.8	10	1,507
540-206					25.3					25.3	10	320
540-210					26.2					26.2	10	518
540-221		29.5								29.5	5	366
540-223	33.5	7.7		26.9						68.1	5	854
540-224		39.4								39.4	5	405
540-225		38.1								38.1	5	814
551-201							17.6			17.6	30	163
551-205							71.5			71.5	30	1,064
551-207	35.3									35.3	0	435
551-209	7.6									7.6	0	209
551-211				29.1						29.1	15	431
551-213					17.3					17.3	10	227
551-214				13.0						13.0	10	142
551-216				53.1						53.1	20	736
551-219				16.3						16.3	15	339
551-220				39.2						39.2	10	446
551-223	29.3									29.3	0	535
551-224		71.2								71.2	5	1,423
551-227				87.0						87.0	40	1,186
551-230				31.2						31.2	15	379
551-261									20.8	20.8	40	119
551-263		20.5								20.5	5	393
551-267	28.9									28.9	0	385
551-268		30.5								30.5	5	350
551-999*		218.0								218.0	0	3,922
Total	417.1	1225.0	179.4	1680.2	201.7	205.4	168.9	22.5	449.1	4549.3		89,875

* Alt. 4 Thorne Island Uneven-aged Management

These tables provide an overview of the distribution of harvest areas across the Project Area for each Volume Class and Alternative.

Appendix D

Table D-2

Proposed Harvest of Volume Class by VCU for Alternative 2

VCU	Volume Class 4		Volume Class 5		Volume Class 6	
	Harvest	% Existing	Harvest	% Existing	Harvest	% Existing
527	19	3.9	61	5.2	156	6.5
528	33	4.2	47	4.5	58	10.2
528.1	0	0.0	0	0.0	0	0.0
529	141	6.6	213	8.1	59	3.1
530	70	4.0	80	5.4	92	6.1
531.1	111	4.3	323	9.0	2	0.1
531.3	0	0.0	0	0.0	0	0.0
532	88	6.2	46	3.1	47	5.3
533	67	4.7	475	11.7	128	8.7
534	68	5.1	87	3.6	0	0.0
534.1	16	3.8	56	22.7	0	0.0
534.2	0	0.0	0	0.0	0	0.0
534.3	0	0.0	0	0.0	0	0.0
534.4	0	0.0	0	0.0	0	0.0
535	125	11.4	66	10.0	0	0.0
536	91	10.0	104	9.7	5	0.7
537.1	0	0.0	17	2.0	0	0.0
538	21	3.0	48	7.4	4	0.8
539	150	8.5	63	4.6	0	0.0
540	167	9.0	36	6.8	0	0.0
551	325	14.1	207	15.5	0	0.0
Total	1,494	6.0	1,928	6.5	552	3.3

VCU	Volume Class 7		Undesignated*		Harvest	Total % Existing
	Harvest	% Existing	Harvest	% Existing		
527	7	2.9	2	2.2	245	4.0
528	0	0.0	3	0.3	141	3.2
528.1	0	0.0	0	0.0	0	0.0
529	99	6.7	25	0.8	538	3.6
530	33	12.1	8	0.2	283	2.7
531.1	0	0.0	19	0.4	455	2.9
531.3	0	0.0	0	0.0	0	0.0
532	13	2.1	40	0.8	234	1.6
533	69	16.9	28	0.7	769	5.9
534	0	0.0	16	0.6	171	1.9
534.1	0	0.0	11	1.3	83	4.3
534.2	0	0.0	0	0.0	0	0.0
534.3	0	0.0	0	0.0	0	0.0
534.4	0	0.0	0	0.0	0	0.0
535	0	0.0	3	0.1	194	2.8
536	0	0.0	20	0.8	220	3.3
537.1	0	0.0	4	0.2	21	0.4
538	0	0.0	11	0.8	84	1.0
539	0	0.0	47	1.8	260	3.1
540	0	0.0	29	2.2	233	5.1
551	0	0.0	87	2.5	619	8.1
Total	220	6.3	355	0.7	4,549	2.9

Source: GIS query, USDA Forest Service, TNF

% of existing % to be harvested from the existing volume class acreage in each VCU

* Includes areas which are not currently mapped with a volume class designation. These areas represent inclusions within or along the edges of harvest units that should be upgraded to VC 4 or higher based on ground verification. Table D-3

Table D-3

Proposed Harvest of Volume Class by VCU for Alternative 3

VCU	Volume Class 4		Volume Class 5		Volume Class 6	
	Harvest	% Existing	Harvest	% Existing	Harvest	% Existing
527	0	0.0	0	0.0	0	0.0
528	33	4.2	30	2.8	51	8.9
528.1	0	0.0	0	0.0	0	0.0
529	121	5.7	190	7.2	59	3.1
530	20	1.2	38	2.5	0	0.0
531.1	98	3.8	1	0.0	0	0.0
531.3	0	0.0	0	0.0	0	0.0
532	88	6.2	36	2.4	0	0.0
533	67	4.7	397	9.7	110	7.5
534	56	4.2	53	2.2	0	0.0
534.1	16	3.8	56	22.7	0	0.0
534.2	0	0.0	0	0.0	0	0.0
534.3	0	0.0	0	0.0	0	0.0
534.4	0	0.0	0	0.0	0	0.0
535	125	11.4	66	10.0	0	0.0
536	30	3.3	51	4.7	0	0.0
537.1	0	0.0	17	2.0	0	0.0
538	21	3.0	16	2.5	4	0.8
539	45	2.5	24	1.7	0	0.0
540	165	8.9	36	6.8	0	0.0
551	325	14.1	207	15.5	0	0.0
Total	1,211	4.8	1,217	4.1	225	1.3

VCU	Volume Class 7		Undesignated*		Total	
	Harvest	% Existing	Harvest	% Existing	Harvest	% Existing
527	0	0.0	0	0.0	0	0.0
528	0	0.0	3	0.3	116	0.0
528.1	0	0.0	0	0.0	0	0.0
529	59	4.0	23	0.7	452	0.0
530	0	0.0	1	0.0	59	0.0
531.1	0	0.0	2	0.0	101	0.0
531.3	0	0.0	0	0.0	0	0.0
532	0	0.0	25	0.5	149	0.0
533	69	16.9	28	0.7	671	0.0
534	0	0.0	10	0.3	120	0.0
534.1	0	0.0	11	1.3	83	0.0
534.2	0	0.0	0	0.0	0	0.0
534.3	0	0.0	0	0.0	0	0.0
534.4	0	0.0	0	0.0	0	0.0
535	0	0.0	3	0.1	194	0.0
536	0	0.0	19	0.8	100	0.0
537.1	0	0.0	4	0.2	21	0.0
538	0	0.0	10	0.7	51	0.0
539	0	0.0	8	0.3	77	0.0
540	0	0.0	25	1.9	227	0.0
551	0	0.0	87	2.5	619	0.0
Total	129	3.7	258	0.5	3,040	1.9

Source: GIS query, USDA Forest Service, TNF

% of existing% to be harvested from the existing volume class acreage in each VCU

* Includes areas which are not currently mapped with a volume class designation. These areas represent inclusions within or along the edges of harvest units that should be upgraded to VC 4 or higher based on ground verification.

Appendix D

Table D-4

Proposed Harvest of Volume Class by VCU for Alternative 4

VCU	Volume Class 4		Volume Class 5		Volume Class 6	
	Harvest	% Existing	Harvest	% Existing	Harvest	% Existing
527	15	3.1	29	2.5	71	2.9
528	24	3.1	37	3.5	16	2.9
528.1	0	0.0	0	0.0	0	0.0
529	109	5.1	157	6.0	5	0.3
530	66	3.8	70	4.7	92	6.1
531.1	100	3.9	89	2.5	0	0.0
531.3	0	0.0	0	0.0	0	0.0
532	88	6.2	36	2.4	0	0.0
533	41	2.9	259	6.4	35	2.4
534	68	5.1	87	3.6	0	0.0
534.1	16	3.8	56	22.7	0	0.0
534.2	0	0.0	0	0.0	0	0.0
534.3	0	0.0	0	0.0	0	0.0
534.4	0	0.0	0	0.0	0	0.0
535	125	11.4	66	10.0	0	0.0
536	30	3.3	77	7.1	3	0.5
537.1	0	0.0	17	2.0	0	0.0
538	21	3.0	48	7.4	4	0.8
539	150	8.5	63	4.6	0	0.0
540	167	9.0	36	6.8	0	0.0
551	116	5.0	71	5.3	0	0.0
Total	1,136	4.5	1,198	4.0	227	1.4

VCU	Volume Class 7		Undesignated*		Total	
	Harvest	% Existing	Harvest	% Existing	Harvest	% Existing
527	7	2.9	1	1.4	123	0.0
528	0	0.0	3	0.3	81	0.0
528.1	0	0.0	0	0.0	0	0.0
529	57	3.9	21	0.6	349	0.0
530	33	12.1	8	0.2	269	0.0
531.1	0	0.0	9	0.2	198	0.0
531.3	0	0.0	0	0.0	0	0.0
532	0	0.0	25	0.5	149	0.0
533	0	0.0	21	0.6	356	0.0
534	0	0.0	16	0.6	171	0.0
534.1	0	0.0	11	1.3	83	0.0
534.2	0	0.0	0	0.0	0	0.0
534.3	0	0.0	0	0.0	0	0.0
534.4	0	0.0	0	0.0	0	0.0
535	0	0.0	3	0.1	194	0.0
536	0	0.0	19	0.8	129	0.0
537.1	0	0.0	4	0.2	21	0.0
538	0	0.0	11	0.8	84	0.0
539	0	0.0	47	1.8	260	0.0
540	0	0.0	29	2.2	233	0.0
551	0	0.0	31	0.9	218	0.0
Total	97	2.8	261	0.5	2,919	1.9

Source: GIS query, USDA Forest Service, TNF

% of existing% to be harvested from the existing volume class acreage in each VCU

* Includes areas which are not currently mapped with a volume class designation. These areas represent inclusions within or along the edges of harvest units that should be upgraded to VC 4 or higher based on ground verification.

Table D-5

Proposed Harvest of Volume Class by VCU for Alternative 5

VCU	Volume Class 4		Volume Class 5		Volume Class 6	
	Harvest	% Existing	Harvest	% Existing	Harvest	% Existing
527	19	3.9	61	5.2	156	6.5
528	9	1.1	10	1.0	42	7.3
528.1	0	0.0	0	0.0	0	0.0
529	17	0.8	71	2.7	0	0.0
530	0	0.0	29	1.9	92	6.1
531.1	86	3.4	108	3.0	0	0.0
531.3	0	0.0	0	0.0	0	0.0
532	88	6.2	46	3.1	47	5.3
533	67	4.7	475	11.7	128	8.7
534	68	5.1	87	3.6	0	0.0
534.1	16	3.8	56	22.7	0	0.0
534.2	0	0.0	0	0.0	0	0.0
534.3	0	0.0	0	0.0	0	0.0
534.4	0	0.0	0	0.0	0	0.0
535	125	11.4	66	10.0	0	0.0
536	0	0.0	26	2.4	3	0.5
537.1	0	0.0	17	2.0	0	0.0
538	0	0.0	0	0.0	0	0.0
539	92	5.2	39	2.9	0	0.0
540	52	2.8	17	3.2	0	0.0
551	325	14.1	207	15.5	0	0.0
Total	965	3.8	1,315	4.4	469	2.8

VCU	Volume Class 7		Undesignated*		Total	
	Harvest	% Existing	Harvest	% Existing	Harvest	% Existing
527	7	2.9	2	2.2	245	0.0
528	0	0.0	0	0.0	61	0.0
528.1	0	0.0	0	0.0	0	0.0
529	0	0.0	4	0.1	92	0.0
530	0	0.0	3	0.1	124	0.0
531.1	0	0.0	8	0.2	203	0.0
531.3	0	0.0	0	0.0	0	0.0
532	13	2.1	40	0.8	234	0.0
533	69	16.9	28	0.7	769	0.0
534	0	0.0	16	0.6	171	0.0
534.1	0	0.0	11	1.3	83	0.0
534.2	0	0.0	0	0.0	0	0.0
534.3	0	0.0	0	0.0	0	0.0
534.4	0	0.0	0	0.0	0	0.0
535	0	0.0	3	0.1	194	0.0
536	0	0.0	0	0.0	30	0.0
537.1	0	0.0	4	0.2	21	0.0
538	0	0.0	0	0.0	0	0.0
539	0	0.0	40	1.5	171	0.0
540	0	0.0	22	1.7	91	0.0
551	0	0.0	87	2.5	619	0.0
Total	89	2.5	270	0.5	3,106	2.0

Source: GIS query, USDA Forest Service, TNF

% of existing % to be harvested from the existing volume class acreage in each VCU

* Includes areas which are not currently mapped with a volume class designation. These areas represent inclusions within or along the edges of harvest units that should be upgraded to VC 4 or higher based on ground verification.

Table D-6 describes the spatial distribution of harvest types across the Project Area by VCU for Alternatives 2, 3, 4, and 5.

Table D-6

Acres Harvested by Silvicultural System and Alternative

Alternative 2 Silvicultural Harvest Types

VCU	A	B	C	D	E	F	G	H	I	Total
527	0	85	0	70	8	0	0	20	62	245
528	4	65	12	47	0	14	0	0	12	153
529	82	182	0	204	28	20	9	0	0	526
530	25	92	11	136	0	17	0	2	0	283
531.1	6	87	93	88	0	27	0	0	155	455
532	21	0	0	85	0	128	0	0	0	234
533	48	253	0	315	14	0	0	0	138	769
534	5	74	0	92	0	0	0	0	0	171
534.1	35	48	0	0	0	0	0	0	0	83
535	9	- 6	0	179	0	0	0	0	0	194
536	0	35	0	83	0	0	40	0	61	220
537.1	21	0	0	0	0	0	0	0	0	21
538	0	21	0	33	0	0	31	0	0	84
539	27	41	64	45	83	0	0	0	0	260
540	33	115	0	33	51	0	0	0	0	233
551	101	122	0	269	17	0	89	0	21	619
Total	417	1,225	179	1,680	202	205	169	23	449	4,549

Alternative 3 Silvicultural Harvest Types

527	0	0	0	0	0	0	0	0	0	0
528	4	65	0	34	0	14	0	0	0	116
529	82	143	0	159	28	20	9	0	12	452
530	0	59	0	0	0	0	0	0	0	59
531.1	0	0	55	0	0	27	0	0	19	101
532	21	0	0	0	0	128	0	0	0	149
533	48	253	0	315	14	0	0	0	40	671
534	5	74	0	41	0	0	0	0	0	120
534.1	35	48	0	0	0	0	0	0	0	83
535	9	6	0	179	0	0	0	0	0	194

Table D-6 (continued)

Acres Harvested by Silvicultural System and Alternative**Alternative 3 Silvicultural Harvest Types (Continued)**

VCU	A	B	C	D	E	F	G	H	I	Total
536	0	35	0	25	0	0	40	0	0	100
537.1	21	0	0	0	0	0	0	0	0	21
538	0	21	0	0	0	0	31	0	0	51
539	0	13	64	0	0	0	0	0	0	77
540	33	115	0	27	51	0	0	0	0	227
551	101	122	0	269	17	0	89	0	21	619
Total	359	953	119	1,048	111	188	169	0	92	3,040

Alternative 4 Silvicultural Harvest Types

527	0	0	0	61	0	0	0	0	62	123
528	0	42	12	13	0	14	0	0	0	81
529	82	169	0	69	0	20	9	0	0	349
530	25	78	11	136	0	17	0	2	0	269
531.1	0	56	55	41	0	27	0	0	19	198
532	21	0	0	0	0	128	0	0	0	149
533	16	104	0	153	14	0	0	0	70	356
534	5	74	0	92	0	0	0	0	0	171
534.1	35	48	0	0	0	0	0	0	0	83
535	9	6	0	179	0	0	0	0	0	194
536	0	35	0	55	0	0	40	0	0	129
537.1	21	0	0	0	0	0	0	0	0	21
538	0	21	0	33	0	0	31	0	0	84
539	27	41	64	45	83	0	0	0	0	260
540	33	115	0	33	51	0	0	0	0	233
551	0	0	218	0	0	0	0	0	0	218
Total	274	787	360	911	148	205	80	2	151	2,919

D-6 (continued)

Acres Harvested by Silvicultural System and Alternative**Alternative 5 Silvicultural Harvest Types**

527	0	85	0	70	8	0	0	20	62	245
528	4	23	0	34	0	0	0	0	0	61
529	0	13	0	41	28	0	9	0	0	92
530	25	0	0	97	14	0	0	2	138	276
531.1	6	31	93	47	0	27	0	0	0	203
532	21	0	0	85	0	128	0	0	0	234
533	48	253	0	315	0	0	0	0	0	617
534	5	74	0	92	0	0	0	0	0	171
534.1	35	48	0	0	0	0	0	0	0	83
535	9	6	0	179	0	0	0	0	0	194
536	0	0	0	30	0	0	0	0	0	30
537.1	21	0	0	0	0	0	0	0	0	21
538	0	0	0	0	0	0	0	0	0	0
539	27	41	0	20	83	0	0	0	0	171
540	0	39	0	0	51	0	0	0	0	91
551	101	122	0	269	17	0	89	0	21	619
Total	302	736	93	1,279	202	154	98	23	221	3,106

Appendix E

Thorne Island Uneven-aged Management Plan

Thorne Island Uneven-Aged Management Plan

An uneven-aged management plan was developed for timber harvest on Thorne Island for Alternative 4. This plan was prepared in response to issues and concerns identified during the public involvement process. The purpose of this plan is to minimize the impacts of timber harvest on the physical, biological, and social resources of the island, while providing for a sustained harvest volume, as allowed under the Land Use Designation of the current and proposed Tongass Land Management Plan (USDA Forest Service 1979a as amended, USDA Forest Service 1991a). It is the objective of the uneven-aged management plan to maintain a functional old growth ecosystem on Thorne Island for the benefit of natural resources and amenity values while contributing volume to the KPC Long-term Timber Sale Contract.

Criteria for Selecting Uneven-Aged Management

Public comments on the Lab Bay Project indicated a high level of concern regarding harvest proposed for Thorne Island. Specifically, concern was noted for the potential effects of harvest and roading on: 1) wildlife and fisheries resources used by subsistence users; 2) visual and recreation resources used by residents of Whale Pass and surrounding areas; 3) visuals and recreation resources used by visitors to the area, including lodge guests, boaters, sport fishermen; and 4) old growth ecosystems, including species such as northern goshawks and wolves. In response to these concerns, alternatives to traditional clearcut harvesting were evaluated for the island.

The following criteria were identified to be necessary for an uneven-aged management plan, using helicopter harvesting methods, to be considered a viable alternative to conventional roaded harvesting.

1. Does the area have a logical geographical boundary separating it from nearby even-aged management areas?
2. Is the cost of infrastructure development for conventional roaded harvest high?
3. Is the average helicopter yarding distance for the geographical area under 0.75 miles?
4. Is the perceived public value of amenity uses high?

Thorne Island meets all of the above criteria, indicating that an uneven-aged harvest plan might be feasible from the economic standpoint. For these reasons, it was decided to develop a detailed uneven-aged harvest plan for the island, and to evaluate the effects of its implementation.

Integrated Landscape Planning

The uneven-aged management plan for Thorne Island follows a landscape scale approach for creating an uneven-aged mosaic of patches in an existing unmanaged forest. The process consists of harvesting an equal area, in one or more cutting units, during each entry of the cutting cycle throughout the desired rotation (Davis 1987). The harvest identified in Alternative 4 would complete the first entry proposed for this plan.

Existing Condition of Thorne Island

Thorne Island is roughly circular, 7,295 acres in size, and currently has no roads, log transfer facilities, or other improved developments present. GIS analysis shows that approximately 3,052 acres of the island is considered suitable for timber harvest, 26 acres of which have been previously harvested. For the uneven-aged management plan the suitable timber base is defined as described in the Silviculture, Timber & Vegetation section of Chapter 3 with the exception that lands within the 500 foot beach fringe buffer have also been identified as suitable for timber harvest if all other suitability criteria are met.

Management Compartments

The suitable timber base was separated into three compartments (interior, beach fringe, and habitat conservation area (HCA)), each with a defined rotation length and timing of the first entry.

The interior compartment is the suitable lands that are not within the 500-foot beach fringe or the HCA. This area will be managed under a 150-year rotation with the first entry occurring this time period. A 150-year rotation is used for the interior compartment to allow time for mature stands to achieve old growth characteristics. The beach fringe compartment is the suitable lands within the 500-foot beach fringe that are not within the HCA. This area will be managed under a 195-year rotation with the first entry occurring this time period. The HCA compartment includes the interior and beach fringe suitable lands exclusively within the HCA boundary. This area will be managed under a 195-year rotation with the first harvest occurring during the second entry cycle. A 195-year rotation is used in the beach fringe and HCA compartments of the island in order to maintain a lower rate of harvest in sensitive areas. A 15-year re-entry interval was chosen so that precommercial thinning treatments on the more productive sites could be scheduled during the next entry. Commercial thinning stand treatments could also be conducted during entry periods to provide volume and wildlife habitat improvement.

Beach fringe is defined in the TLMP Draft Revision (1991a) as the land within 500 feet of mean high tide. Under the TLMP Draft Revision, these lands are considered unavailable for commercial timber harvest. Lands within the HCA would also be considered unavailable for harvest at this time per VPOP Committee recommendations. Under the proposed 195-year rotation length, the 2-acre patch cuts will be distributed at a density of approximately one per 26 acres of suitable forestland for each entry. Both the beach fringe and HCA areas are comprised of a mix of suitable forestland and unsuitable lands including forested and open muskeg. Because the habitats currently exhibit a mix of old growth with natural openings, forested muskeg and open muskeg habitats, and the openings created through harvest will be small and well-distributed, it is expected that the functions and values of the beach fringe and HCA habitats will be maintained over the 195-year rotation. For this reason, it was determined to be appropriate to include the suitable portions of these habitats in the available base for the uneven-aged management plan.

Calculation of Harvest Level

The sustained harvest level proposed for Thorne Island is determined using the rotation defined for each of the compartments, a 15-year re-entry interval, and an equal number of acres harvested in each cutting cycle through the entire length of the rotation.

A grid system was used in GIS to divide the island into two-acre squares. This resulted in 1,526 squares distributed across the island on the suitable timber base. Each square located on the suitable timber base represents a potential cutting unit. The GIS analysis identified 918 squares in the interior compartment, 274 squares in the beach fringe compartment, and 334 squares in the HCA compartment.

The percentage of the suitable base that can be harvested each entry is defined by the rotation length and the re-entry interval. This is represented in the following formula.

$$\text{percent harvest} = \left(\frac{\text{re-entry interval}}{\text{rotation length}} \right) \times 100$$

The number of squares available for harvest during each re-entry period is identified by the following formula.

$$\text{number of points} = \left(\frac{\text{number of points in suitable base}}{\text{rotation length}} \right) \times \text{re-entry interval}$$

Using this formula, a maximum of 92 squares (184 acres) could be scheduled in the interior compartment, 21 squares (42 acres) could be scheduled in the beach fringe compartment, and 26 squares (52 acres) could be scheduled in the HCA suitable area of the island.

Approximately 95 percent of the suitable timber base is within one mile of the shoreline. The average yarding distance for the suitable timber was estimated to be 2/3 of a mile. Harvest of the interior most patches will occur at the same time as patches closer to the shoreline. This will maintain the average yarding distance of a sale offering less than 2/3 of a mile, thereby making the sale and harvest of interior patches economical. Each entry would harvest a proportionate amount of timber from both long and short yarding distances.

Selection of Proposed Cutting Units

The next step in this process was to determine the individual squares that would be proposed for harvest. Since the uneven-age management plan should be continued to the end of the rotation, a systematic method was developed for choosing cutting units (squares) that could be repeated during the planning of each entry. A unique identification number was assigned to each square within the suitable timber base. The numbers begin at the furthest northwest square and sequentially proceed across the top row of squares then return to the west and restart on the next line down (the same order that is used when reading a page of text). A GIS AML program was developed to identify and select squares for harvest in the first entry. The program uses the identification number of each square that is within the suitable base, and the compartment (interior, beach fringe, or HCA) the square is located in. Loop counters were used to track the number of squares counted in each compartment as the program reviewed the squares moving east and south through the suitable timber base.

GIS databases were used to determine suitable and available lands for harvest on the island. With the exception of the inclusion of suitable lands within the beach fringe, current TLMP (1979a, as amended) and TLMP Draft Revision (1991a) criteria and standards and guidelines were used. Grid squares that fell within TTRA stream buffers, for example, were dropped from consideration. Under the conventional harvest plan, 19 units and over 15 miles of road are proposed for Thorne Island. Field inventory work for the conventional units and roads required ground survey of major portions of the island and included fisheries, wildlife, soils, water quality, timber inventory, visuals, recreation, and cultural resources. Due to this extensive field-verified database, it is anticipated that little additional falldown will occur during final layout for the selected grid squares. It should be noted that areas of high probability for cultural resources will require surveys.

Current Entry

For the current entry the program began by selecting the first point in the suitable base of each compartment and every tenth point thereafter in the interior compartment (every thirteenth point in the beach fringe and HCA compartments). This selection spacing is based on the following formula.

$$\text{selection sequence} = \left(\frac{1}{\text{percent harvest} / 100} \right)$$

Which is equivalent to the following formula.

$$\text{selection sequence} = \left(\frac{\text{rotation length}}{\text{re-entry interval}} \right)$$

The actual pattern of harvest on the landscape of Thorne Island for each entry will not appear as a systematic grid due to the presence of non-suitable land intermingled throughout the suitable timber base. Figure x?x shows the location of propose cutting units on Thorne Island for the first entry. In the interior compartment, one square has been previously harvested and is deferred from the current entry. In the beach fringe compartment, three squares have been dropped from the current entry due to their proximity to cultural resource sites. The squares identified within the HCA for the first entry have been deferred from harvest while management guidelines are being finalized. This will ensure that future options are available in the near term for habitat conservation planning, while also providing the option of beginning the uneven-aged management plan in this area during the second entry.

For purposes of analysis, the entire island is referred to as Unit 551-999 under the uneven-aged harvest plan, avoiding the need for 218 individual unit cards and numbers. However, each 2-acre cutting unit will be individually identified and verified for suitability of harvest using field inventory and GIS data. Proportionality is calculated based on the Volume Class acres for each of the identified 2-acre cutting units.

Future Entries

In order to minimize the selection of squares immediately adjacent to one another on subsequent entries, the selection of the starting square should be staggered with each entry. For example, if the selection sequence is every tenth square, the second entry can choose the fifth square for a starting point, and the third entry the third or the eighth square. Subsequent entries can follow this same pattern.

Harvest Type

The cutting unit squares are defined as two acres in size and will be harvested using a clearcut with reserve tree prescription. Actual size and shape of the cutting units will vary due to timber felling, yarding, and site constraints, but will average 2 acres across the island. Non-merchantable timber will be felled only where necessary to comply with logging safety standards. Two trees per acre (or four trees total) greater than 15 inches dbh, will be retained within the interior of the square. This will provide stand structure in the future for wildlife. Retention trees can be selected by loggers choice and may contain defect or deformities, but should have little or no mistletoe infection. Cedar and spruce trees should be retained whenever practical to maintain and promote species diversity. These patch cuts would mimic naturally occurring openings in old-growth forest and be visually unobtrusive.

Economics

The estimated costs of implementing an uneven-aged harvesting strategy for Thorne Island are shown in Table E-1. This table provides a comparison of the costs associated with conducting a conventional roaded harvest plan versus an uneven-aged management plan. Costs are separated for the initial entry and subsequent entries, using constant dollars for future costs. These costs are estimated for entries occurring over a 150-year period, which would result in the harvesting of approximately 40 million board feet. An estimate of the revenues associated with each management plan using constant dollars would show that the two plans provide equal revenue. This is due to the fact that the same volume would be harvested under both plans and the same revenue is applied per volume harvested.

The comparison of the two plans shows that conventional harvest would result in higher cost during the first entry due to infrastructure development, and lower costs during each subsequent entry. Conventional harvesting requires the continued maintenance of the infrastructure during each re-entry period. Over a 150-year period the entire suitable timber base would be harvested using conventional harvest, while under the uneven-aged management plan portions of the HCA and beach fringe would not have been harvested yet. The beach fringe is considered suitable for harvest under the uneven-aged management plan and therefore this plan has a larger total timber base (an additional 634 acres) harvested over the length of the rotation.

While the total cost of the conventional roaded harvest on Thorne Island is 27 percent lower (\$4.0 million) than the uneven-aged management plan, other monetary and non-monetary benefits would result from the uneven-aged harvest strategy. Benefits that would be available from the selection of an uneven-aged harvest strategy include the following.

1. Minimal permanent disturbance of the physical resources.
2. Maintenance of existing visual quality.
3. Maintenance of old-growth characteristics.
4. Maintenance of existing subsistence values.
5. Maintenance of existing recreation uses and future recreation opportunities.

Table E-1

Thorne Island Cost Comparison		Conventional Harvest	Uneven-Age Mgt. Plan
First Entry			
Quantities			
Proposed Harvest (acres)	619	218	
Proposed Harvest Volume (mbf)	8,961	3,922	
Proposed Road Construction (miles)	15.5	0	
Number of LTF's	1	0	
Cost per Unit			
Harvest Type C (Running Skyline vs. Heli, \$/mbf)	\$134.10	\$380.00	
Hauling (\$/mbf)	\$13.33	\$0.00	
Road Construction (\$/mile)	\$155,280	\$0	
Log Transfer Facility (\$/LTF)	\$100,000	\$0	
Total Costs			
Harvest	\$1,201,670	\$1,490,360	
Hauling	\$119,450	\$0	
Roads	\$2,406,840	\$0	
LTF	\$100,000	\$0	
Total	\$3,827,960	\$1,490,360	
Subsequent Entries		4 additional entries	9 additional entries
Quantities		over a 135 year period	over a 135 year period
Total Proposed Harvest (acres)	1,773	1,962	
Total Proposed Harvest Volume (mbf)	31,914	35,298	
Total Proposed Road Construction (miles)	9	0	
Proposed Road Reconstruction (miles/entry)	11	0	
Number of LTF's	0	0	
Cost per Unit (in constant dollars)			
Harvest Type C (Running Skyline vs. Heli, \$/mbf)	\$134.10	\$380.00	
Hauling (\$/mbf)	\$13.33	\$0.00	
Road Construction (\$/mile)	\$155,280	\$0	
LTF Construction (\$/LTF)	\$100,000	\$0	
Road Reconstruction (\$/mile)	\$20,000	\$0	
LTF Maintenance (\$/entry)	\$25,000	\$0	
Total Costs			
Harvesting	\$4,279,667	\$13,413,240	
Hauling	\$425,414	\$0	
Road Construction	\$1,397,520	\$0	
LTF Construction	\$0	\$0	
Road Reconstruction	\$880,000	\$0	
LTF Maintenance	\$100,000	\$0	
Total	\$7,082,601	\$13,413,240	
Total Costs over a 150 Year Rotation (in constant dollars)			
Total Cost	\$10,910,561	\$14,903,600	
Cost per Thousand Board Feet	\$266.93	\$380.00	

Conclusion

Thorne Island is ideally suited for an uneven-aged management strategy using helicopter harvesting due to its circular shape, an average yarding distance of less than 0.75 miles and a maximum yarding distance of 1.5 miles from the center of the island to an offshore barge, the high cost of establishing roads and a log transfer facility, and the public concerns surrounding conventional timber harvest. The uneven-aged plan developed for the island will allow harvest of a sustained level of 3,922 MBF per 15-year entry over a 150-year period.

Through the use of small, well-distributed, helicopter-yarded patch cuts, it is expected that natural resource and amenity values will be maintained over the 150 to 195-year rotation.

Appendix F

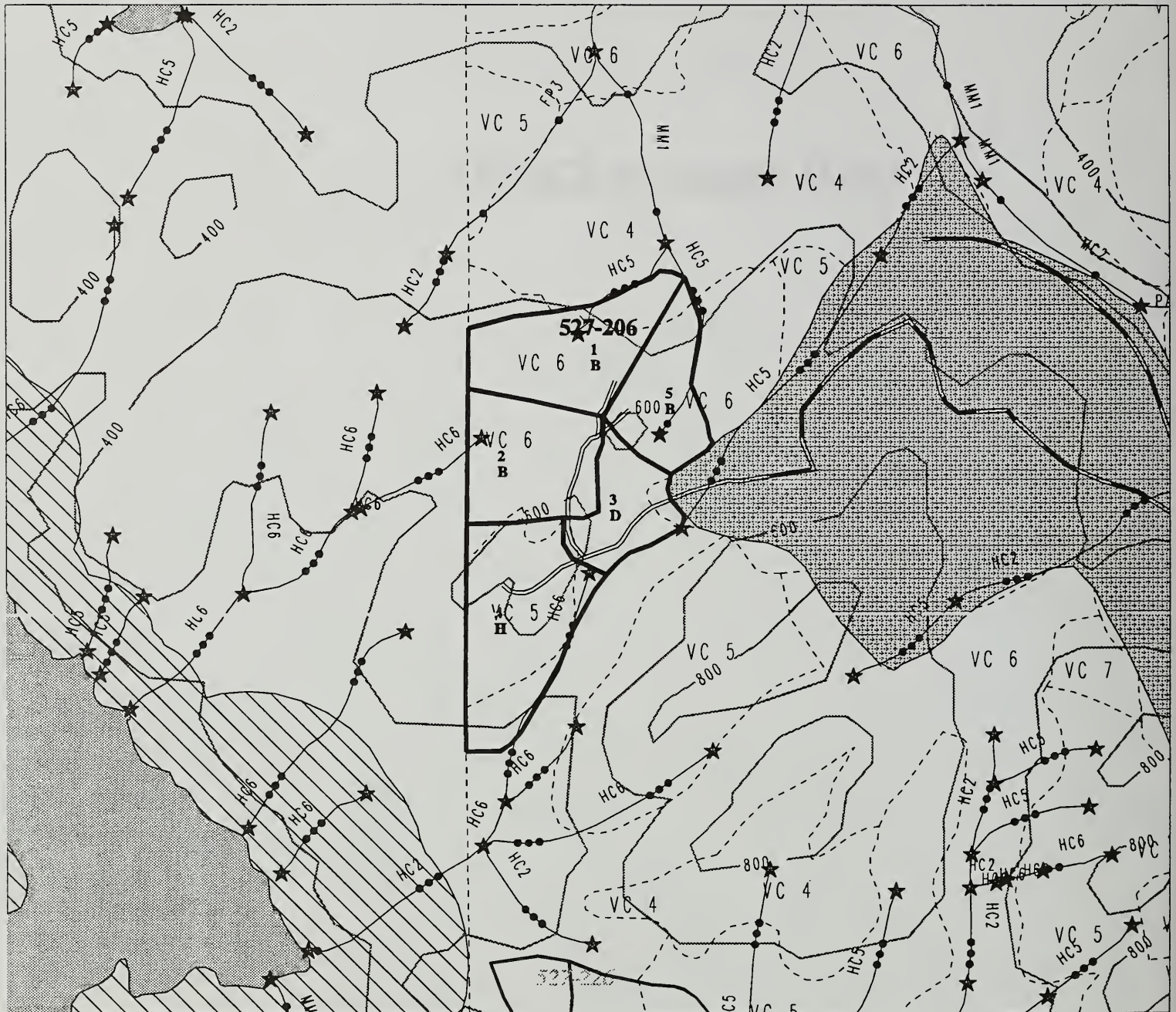
Unit Design Cards

Unit Design Cards

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 527-206

Acres: 69.7



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 527-206 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 527-206

Harvest Volume : 24.3 MBF/acre

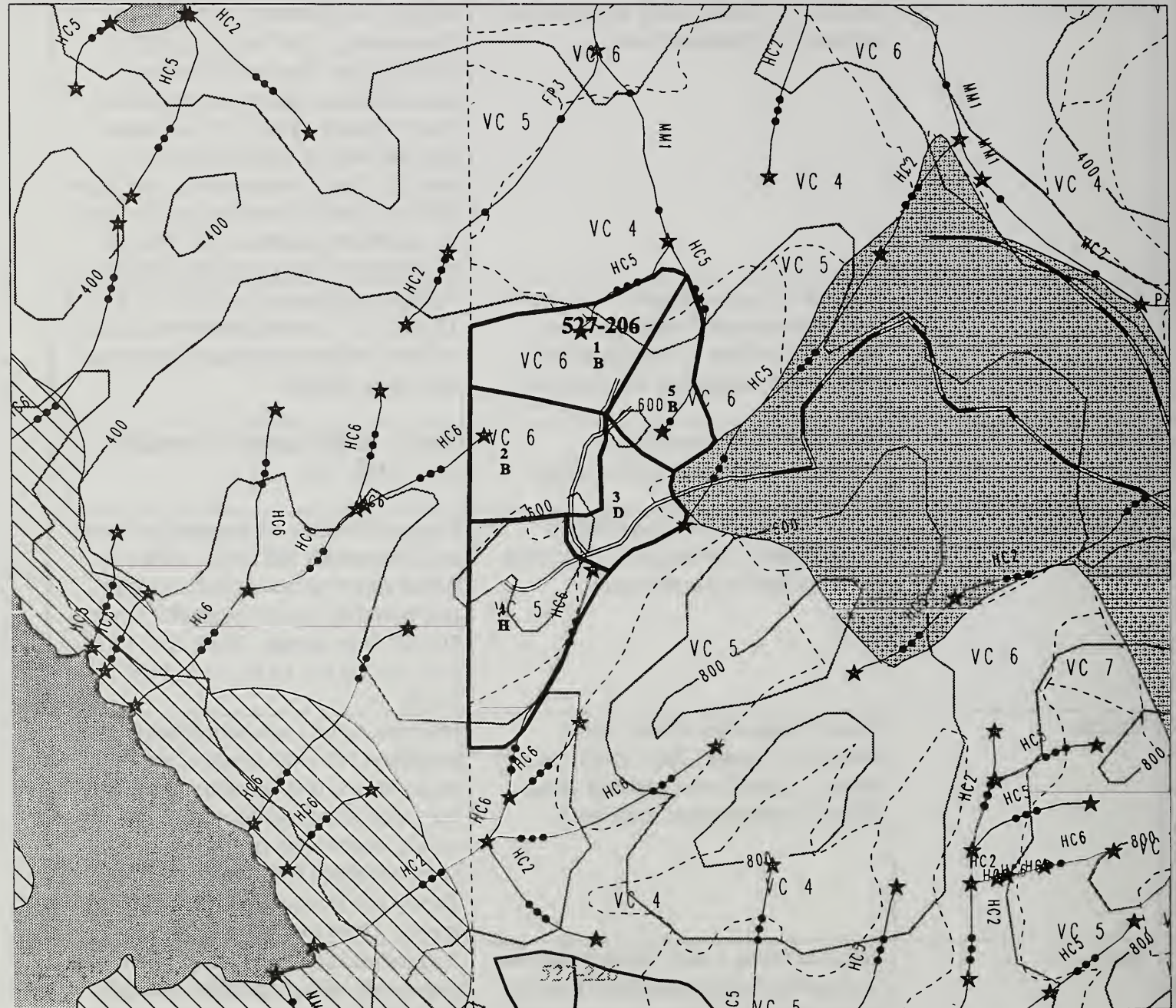
Acres : 69.7

Resource Area	Concerns	Resolution
Silviculture	Possible windthrow along west boundary of clearcut. Mistletoe in unit.	Retain trees (mistletoe-free) of all size classes along a 100' strip adjacent to property line. Site-specific retention areas within the unit were identified by field personnel. These, in conjunction with the Harvest Types (Type B in 3 settings, Type D in one setting, and Type H in one setting), would be used to meet the specified Concern Level. Plan on precommercial thin in approx. 20 years.
Fisheries	Segment of reconstructed road spur off of road 2086 crosses Class III in close proximity to Class I. Harvest within HGC buffer will exceed threshold of 25 unit.	Apply timing restriction, BMP 12.7, 14.6, 14.16, 14.17. Provide no harvest buffers on HGC streams within and adjacent to unit where feasible.
Soils	Minimize risk of erosion and sedimentation due to domestic supply watershed.	Achieve partial suspension throughout unit. BMP 13.9
Water Quality/Quantity	Stream along southeast boundary is deeply incised (not flagged). Watershed for Port Protection community.	Put unit boundary on topographic break and directionally fall away. Achieve partial suspension and mark southeast unit boundary along topographic break, 50-100' from stream. BMP 12.7, 12.11, 13.2, 13.3, 13.9, 13.12, 13.6, 14.8, 14.10.
Wildlife	Heavily fragmented forest; loss of structural diversity. High quality wildlife habitat. Unconfirmed goshawk siting. Within Project-defined small HCA.	Maintain Level 2 structure through the retention of 50'-100' selective harvest buffer around unit boundary and 1-2 acre leave tree islands within swing yard setting- central-east portion of unit. Leave mistletoe-free trees in island. Survey unit for goshawks prior to final layout. Close road after harvest.
Karst	Based on Phase 1 and 2 studies, this unit is located on high vulnerability karst due to contribution to domestic water supply. No sinkholes or caves observed during 1992 field work, but several solution channels; presumed connection to domestic water supply. If this unit is harvested, interim standards and guidelines may not be met.	Recommend dye tracer study to determine connection, or lack thereof to domestic water supply. Geotechnical investigation required to evaluate relocation of Road 64-76-08.1A out of solution channel, and whether blasting along existing and proposed roads adjacent to unit will adversely affect water supply with sedimentation. Ketchikan Area karst resource specialist should review unit during final layout. BMP 14.9

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 527-206

Acres: 69.7



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 527-206 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD

LAB BAY PROJECT AREA

Unit #: 527-206 (Continued)

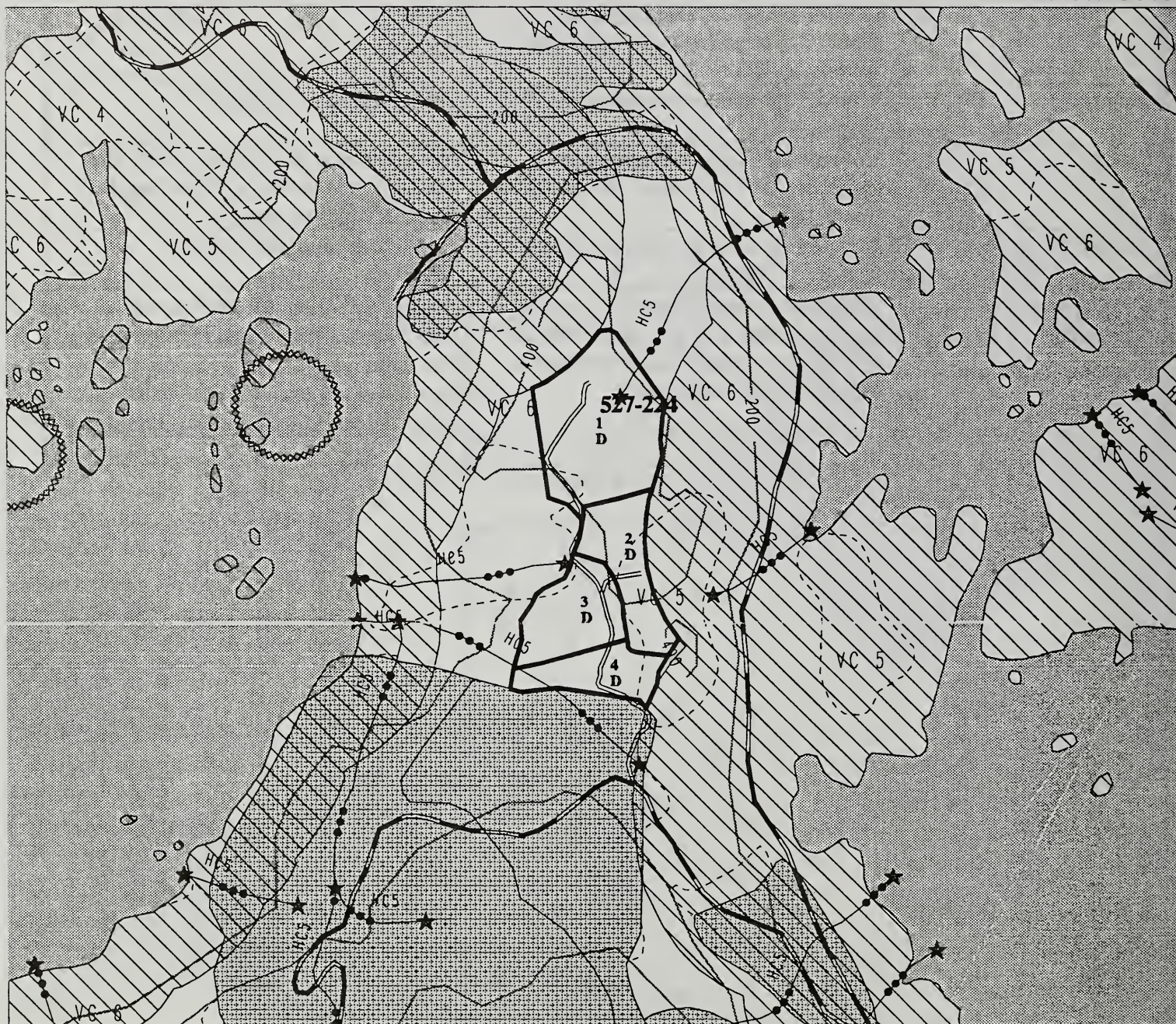
Visuals/Recreation	Visible from Port Protection and Cruiseship Route in middleground. Scenic Viewshed LUD. Adopted Partial Retention VQO.	Meets VQO.
Cultural	Reported culturally modified tree in South tip of unit.	This tip has been dropped.
Lands	Property line along West boundary. southeast winds may cause blowdown on private land.	Survey prior to final layout. Individual tree mark within 100' of West boundary to retain windfirm trees.
Transportation	Rd 64-76-08.1A goes through solution channel for 700 feet.	Close roads following harvest.
Unit Layout/ Administration	Tail trees in private land would be helpful. Location of stream channel and property line dictates south tip location. Achieve partial suspension.	Need to get agreement from private landowners. Private land location survey. Use running skyline. Directionally fell trees away from private land boundary. Retain all trees that fall across boundary.
Opportunities		

BMP's 12.7, 12.11, 13.2, 13.3, 13.9, 13.12, 13.16, 14.6, 14.8, 14.9, 14.10, 14.16, 14.17

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 527-224

Acres: 35.6



- Project Boundary
- Unit 527-224
- Other Units
- - - Timber Type Boundary
- o o o o o Eagle Nest Buffer (330ft)
- Existing Roads
- Proposed Roads
- • — Class I Stream
- • • — Class IIa Stream
- o o — Class IIb Stream
- • • • — Class III Stream

- Water
- Beach Fringe/Estuary
- Second Growth
- 200 ft contours



★ Potential Channel Type Change

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 527-224

Harvest Volume : 27.4 MBF/acre

Acres : 35.6

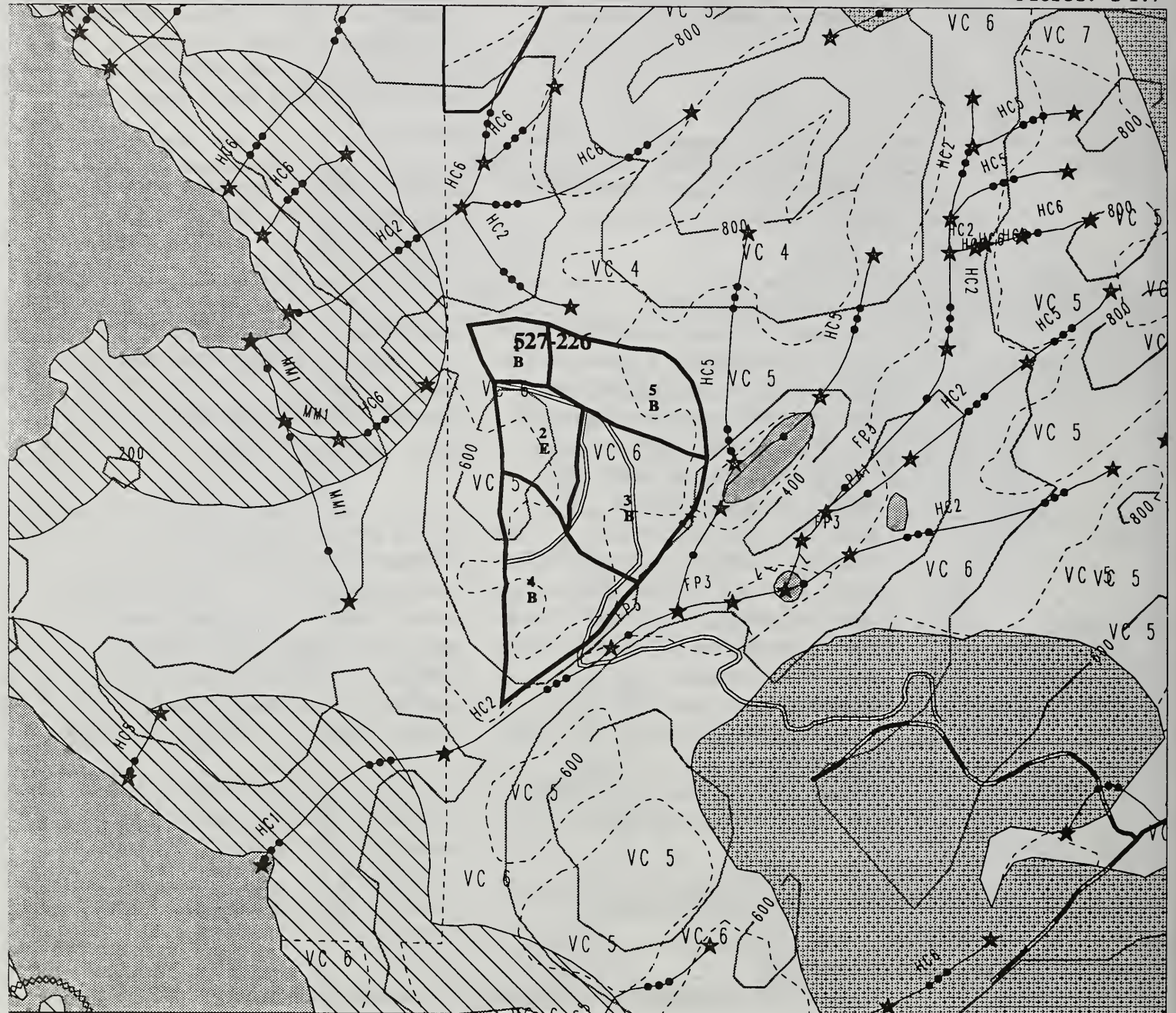
Resource Area	Concerns	Resolution
Silviculture	Infested with mistletoe throughout.	Regeneration Harvest Type D; retain sub-merchantable mistletoe-free trees. Retention in areas with slopes greater than or equal to 70% and in areas of thin soils.
Fisheries	No surface water flows.	
Soils	Deep narrow V-notch on north boundary. Appears to be solution channel.	Maintain north unit boundary at top of slope break, or 1000' from estuary, whichever is greater. BMP 13.2, 13.5, 13.12
Water Quality/Quantity	No surface water flows.	
Wildlife	Alteration of remnant winter range cover. Unit is in the middle of a narrow corridor connecting Protection Head with the mainland. Past harvest has fragmented area. Contains high quality wildlife habitat. Proposed road construction within 1/2 mile of eagle nest.	Maintain level 1 structure through the retention of cull and unmerchantable mistletoe-free trees. Implement 1/2 mile seasonal blasting restrictions. Close road upon completion of harvest.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to karst features (cone karst and solution channels), and thin soils. Some steep slopes present on cone karst knobs and solution channels. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Prior to harvest, geotechnical investigation needed to evaluate road location and stability. Achieve partial suspension due to steep slopes and/or thin soils on karst. Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers. BMP 14.9
Visuals/Recreation	Visible from 20 Road if unit is located too far down slope. (Retention VQO.)	Unit boundary is located above steep topographic break between road and unit; therefore, visual impact is avoided and the VQO is met.
Cultural	No cultural resources identified.	Report any cultural findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Approx. 500' of road in solution channels.	No surface water drainage; road designed to minimize crossings. Close road upon completion of harvest. BMP 14.10
Unit Layout/Administration	Avoiding impacts to karst features. Estuary buffer at north end and along east boundary.	Unit designed for running skyline. Verify north unit boundary is 1000' from the Lab Bay estuary. Move east unit boundary uphill 1000' from Port Protection estuary located east of Road 20.
Opportunities	Expansion of patch cuts to remove mistletoe from adjacent stands, however not recommended to protect visuals.	

BMP's 13.2, 13.5, 13.12, 13.15, 14.9, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 527-226

Acres: 51.7



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 527-226 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 527-226

Harvest Volume : 30.1 MBF/acre

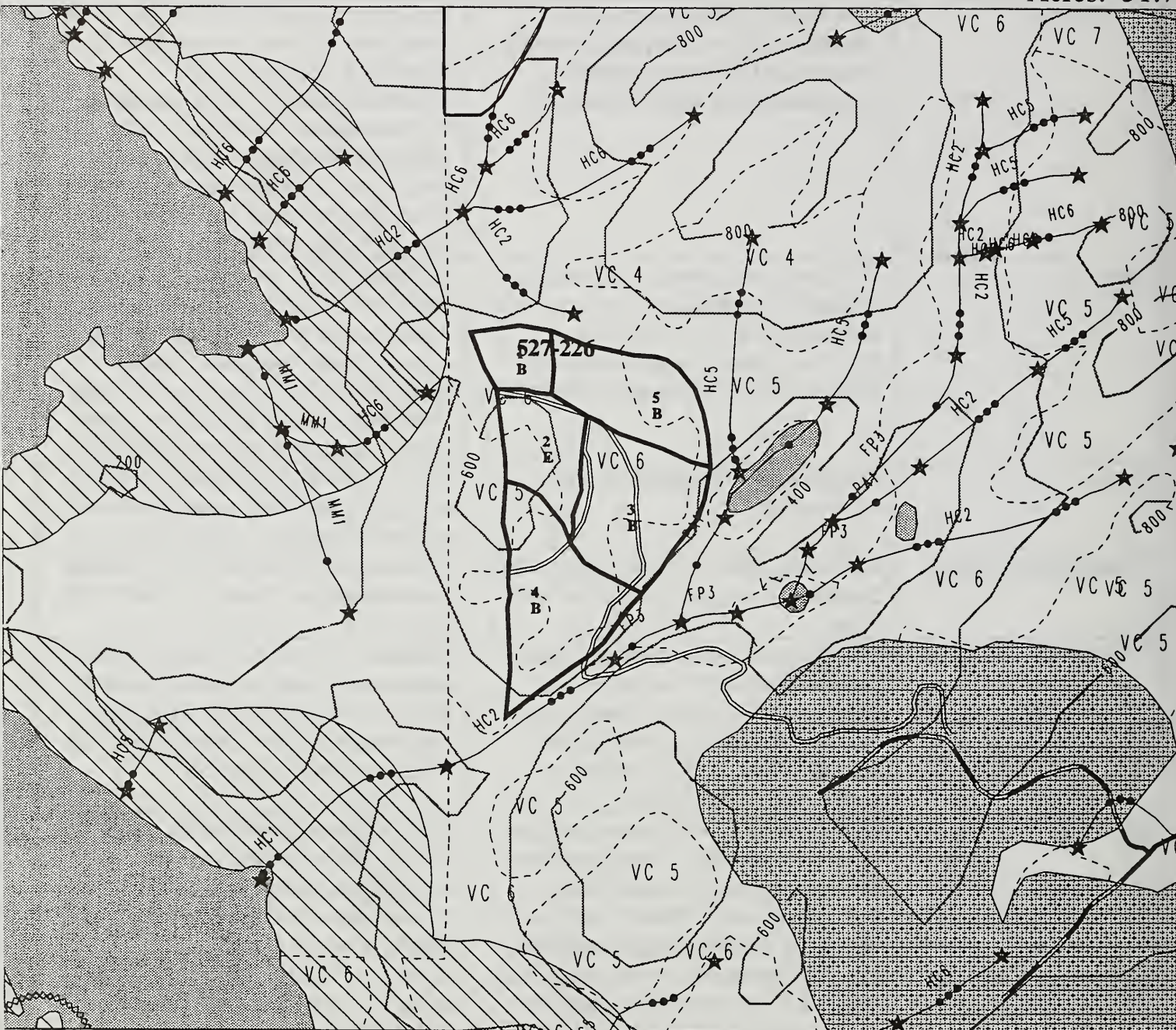
Acres : 51.7

Resource Area	Concerns	Resolution
Silviculture	Area just to south of upper point (elevation 620- see map) approximately 10-acre stand of immature timber. Windthrow along west unit boundary.	Implement Harvest Type E for pocket of trees identified along the west boundary as having a moderate to high windfirmness rating. Other settings are Regeneration Harvest Type B with retention of mistletoe-free trees and/or species other than hemlock. Retain trees (mistletoe-free) of all size classes along a 100' strips adjacent to property line.
Fisheries	Two ponds to southeast with potential resident fish populations - not confirmed, but mapped as Class I in Forest Inventory. Stream on south boundary rated as Class III in stream inventory.	Maintain 100' no harvest buffer, plus a 400' selective harvest buffer around lakes. Areas south of ponds experienced past wind throw due to clearcut opening. Maintain 100' buffer on Class III stream. Windfirmness rated as moderate to high due to topographic location. BMP 12.6.
Soils	Erosion and sedimentation with domestic water supply.	Partial suspension throughout whole unit and 100' buffer along stream associated with south boundary. BMP 13.12, 13.9.
Water Quality/Quantity	Unit within domestic water supply of Port Protection area approximately 1/4 mile below.	(Same as soils resolution.) Unit does not border stream on North side. BMP 13.3, 12.7, 12.11.
Wildlife	Wildlife species associated with pond habitats disrupted. Continued fragmentation of heavily disturbed area northeast of Lab Bay. High quality wildlife habitat. Located within an Project-defined small HCA.	Maintain 100' buffer around ponds and stream along south boundary. Level 1 structure retention through ITM along unit boundary. Road accessing unit will be closed following harvest.
Karst	High potential for insurgence that may affect cave networks. Insurgence point located along south boundary creek. Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to domestic water supply, karst features, steep slopes and proximity to Class I streams and lakes. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Prior to harvest, geotechnical investigation needed to evaluate road location and stability and whether blasting will affect domestic water supply. Control drainage off of road (away from insurgence). Achieve partial suspension due to steep slopes and/or thin soils on karst. Recommend dye tracer study to confirm connection to domestic water supply. Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers. Ketchikan Area karst resource specialist should review unit during final layout. BMP 14.9

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 527-226

Acres: 51.7



- Project Boundary
- Unit 527-226
- Other Units
- Timber Type Boundary
- Eagle Nest Buffer (330ft)
- Existing Roads
- Proposed Roads
- Class I Stream
- Class IIa Stream
- Class IIb Stream
- Class III Stream

- Water
- Beach Fringe/Estuary
- Second Growth
- 200 ft contours

★ Potential Channel Type Change

F-9



March 03, 1995

UNIT PLAN & LAYOUT CARD

LAB BAY PROJECT AREA

Unit #: 527-226 (Continued)

Visuals/Recreation	Designated modified landscape, however specialist considers it a sensitive area due to visibility from Port Protection. Unit design is in compliance with VQO.	ITM to leave windfirm trees as shown on map; within 100-150' of boundary and connection between boundary and leave tree island. ITM to retain windfirm trees - feathered edge. (Considered going to ridge but believe this meets VQO's while harvesting available timber.)
Cultural	Culturally modified tree in middle of unit, where unit becomes more level.	Document description.
Lands	Unit to private property on west side. Concern for windthrow along west boundary.	Survey property lines prior to final layout. ITM to create feathered edge along boundary.
Transportation	Eleven stations of full bench road with two critical switch backs. Road 64-76-17 crosses solution channel.	End haul excess rock material to approved layout. Close roads following harvest. Recommend ground penetrating radar prior to final layouts.
Unit Layout/ Administration	Designed for combination swingyard and slackline machine to achieve partial suspension. Run profiles from each landing to verify partial suspension feasibility.	Leave all trees leaning toward property line that can not be effectively directionally felled. Leave all trees that fall into private land.
Opportunities	Salvage blowdown from proposed Road 64-76-17 south of unit. (It is on North edge of existing clearcut.) Blowdown surrounding road station 47 + 00 - Reverse stationing.	Verify feasibility of salvage while maintaining standing timber.

BMP's 12.6, 12.7, 12.11, 13.3, 13.9, 13.12, 14.9.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 527-227

Acres: 6.6



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 527-227 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 527-227

Harvest Volume : 17.4 MBF/acre

Acres : 6.6

Resource Area	Concerns	Resolution
Silviculture	Evidence of past windthrow. Patches of mature thrifty stands.	Harvest Type I. Retain 40% of the basal area through individual tree selection to maintain wind buffering and reduce potential for blowdown. Helicopter log.
Fisheries	No surface water.	
Soils	Shallow soils on steep slopes along gorge, south west unit boundary potential for erosion and loss of site productivity.	Helicopter Yard - full suspension to reduce disturbance. No harvest within 100-150 feet of gorge where slopes exceed 100%. BMP 13.2, 13.5, 13.9, 13.12.
Water Quality/Quantity	No surface water.	
Wildlife	Plant community in bottom of gorge along southwest boundary is unique for Protection Head. Alteration of large contiguous tract of forest: loss of structural diversity. High quality wildlife habitat, including deer winter range. Unconfirmed goshawk siting.	Level 1 structure retention will be maintained by leaving trees along gorge walls. No harvest within 100-150 feet of gorge where slopes exceed 100%. Survey unit for goshawks prior to final layout.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to karst features and thin soils. Two cave entrances identified 700 feet east of unit on Rd 64-75-24 location - no surface water connection, no wildlife use or cultural use. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Helicopter Yard - do not construct road over caves. Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers.
Visuals/Recreation	Portions of unit visible from Cruiseship Route in middleground. Scenic Viewshed LUD. Adopted Partial Retention VQO.	500' no-harvest buffer from beach. Harvest Type I creating irregular edges. Meets VQO.
Cultural	No concerns identified.	
Lands	No concerns.	
Transportation	Approx. 1,000 feet of full bench; very expensive road to access small unit - See Rd 64-75-24 card and unit card 527-228.	Helicopter Yard to landing in 527-229. Include area north of gorge and south of 500' buffer.
Unit Layout/ Administration	Unit has many bluffs. broken terrain, could only lay out about 6 acres to log to road.	Select windfirm areas for retention between units 527-227 and 527-228. Maintain 500' buffer along west and north boundaries for beach fringe.
Opportunities		

BMP 13.2, 13.5, 13.9, 13.12.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 527-228

Acres: 55.4



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 527-228 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 527-228

Harvest Volume : 10.3 MBF/acre

Acres : 55.4

Resource Area	Concerns	Resolution
Silviculture	Evidence of past windthrow and patches of mature thrifty stands.	Harvest Type I; heli-log several small patches (2-5 acres) within the designated area on unit map. Remove overmature stands and retain mature thrifty stands. Partial cut along north and east unit edges to maintain wind buffering and reduce potential for blowdown.
Fisheries	No surface water.	
Soils	Shallow soils on steep slopes along gorge, south west unit boundary potential for erosion and loss of site productivity.	Helicopter Yard - full suspension to reduce disturbance. No harvest within 100-150 feet of gorge where slopes exceed 100%. BMP 13.2, 13.5, 13.9, 13.12.
Water Quality/Quantity	No surface water.	
Wildlife	Plant community in bottom of gorge along southwest boundary is unique for Protection Head. Alteration of large contiguous tract of forest: loss of structural diversity. High quality habitat, including deer winter range. Heli yarding corridor may be within 1/4 mile of eagle nest.	Level 3 structure retention through maintenance of trees along gorge walls. No harvest within 100-150 feet of gorge where slopes exceed 100%. Harvest in small patch cuts. Implement 1/4 mile seasonal disturbance buffer.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to karst features, steep slopes and thin soils. Two cave entrances identified 700 feet west of unit on Rd 64-75-24 location - no surface water connection, no wildlife use or cultural use. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Helicopter Yard - do not construct road over caves. Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers.
Visuals/Recreation	Portions of unit visible from Port Protection and Cruiseship Route in middleground. Scenic Viewshed LUD. Adopted Partial Retention VQO.	500' no harvest buffer from beach. Helicopter harvest of small patch cuts with irregular edges. Meets VQO.
Cultural	No concerns identified.	
Lands	No concerns.	
Transportation	Very expensive road to access small unit. Consider heli-logging.	Helicopter Yard to landing in 527-229 and expand operating area to include area north of gorge and south of 500' buffer.
Unit Layout/ Administration	Unit has many bluffs. broken terrain, could only lay out about 6 acres to log to road. Consider heli-logging.	Helicopter log. Select windfirm areas for retention. Maintain 500' buffer along west and north boundaries for beach fringe.
Opportunities		

BMP 13.2, 13.5, 13.9, 13.12.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 527-229

Acres: 25.8



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 527-229 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 527-229

Harvest Volume : 23.7 MBF/acre

Acres : 25.8

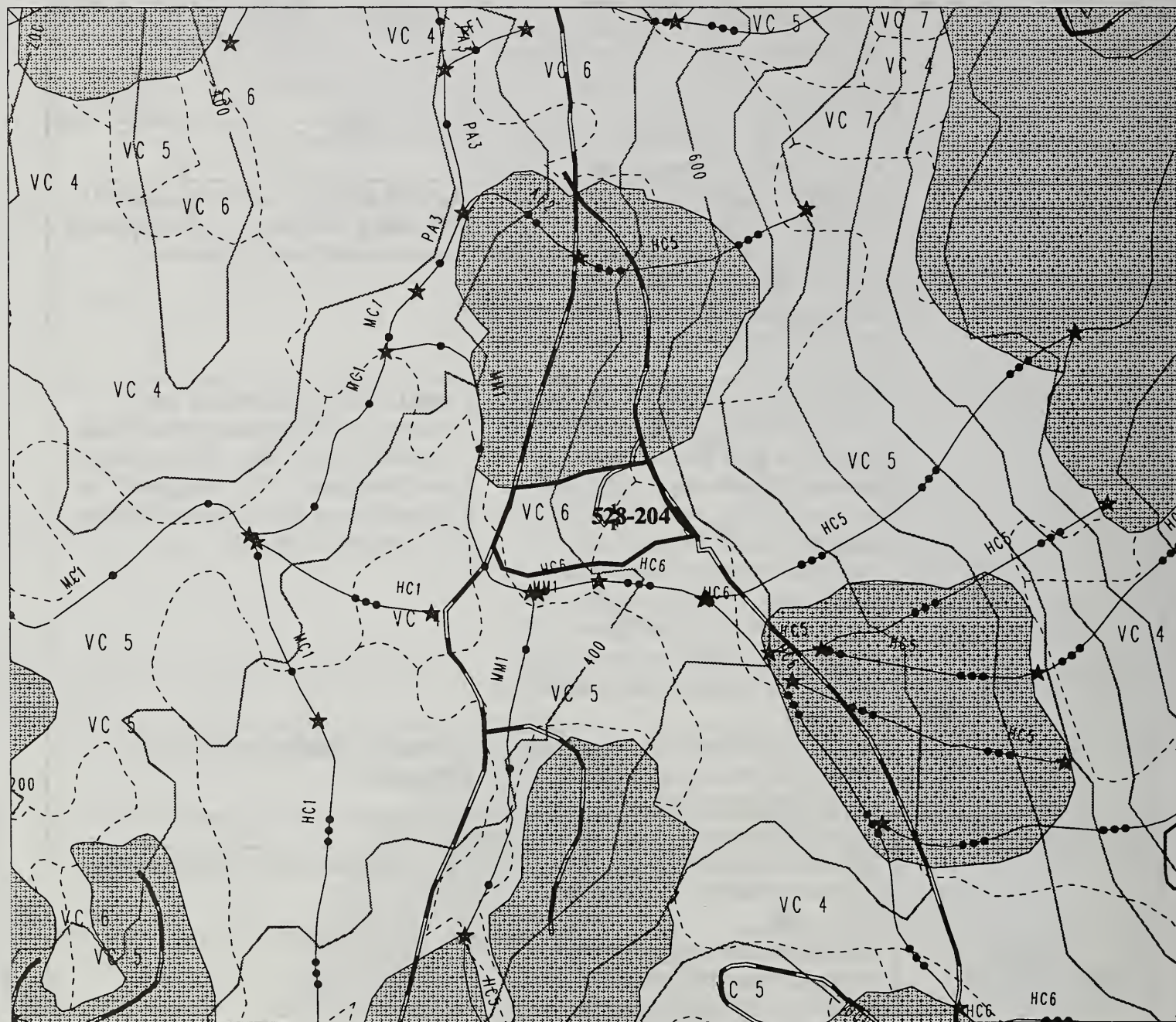
Resource Area	Concerns	Resolution
Silviculture	No special concerns evident.	Regeneration Harvest Type D.
Fisheries	No fish habitat within or downstream of unit.	
Soils	No special concern.	
Water Quality/Quantity	Two stable Class III streams that do not affect fish within or below unit.	BMP 12.7, 14.10.
Wildlife	Alteration of contiguous tract associated with unit 527-227,228. Adverse impacts to forest structure and associated wildlife species. High quality wildlife habitat, including deer-winter range. Proposed road construction within 1/2 mile of eagle nest.	Level 1 structure retention through 100' ITM along unit boundary. Implement 1/2 mile seasonal blasting restrictions.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to karst features (solution channels, sinkholes and grikes) and insurgences. Two swallets identified along Road 64-75-24 Station 45 + 20 (outside of unit approximately 100 ft. west of unit.) If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Avoid filling and channeling road drainage into sinkholes and insurgences. Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers. BMP 14.9.
Visuals/Recreation	Unit not visible from water or across Port Protection.	
Cultural	Culturally modified tree - Along Road #64-75-24 (west of unit) Appeared to be carved with metal tool.	Culturally modified tree record was completed.
Lands	No special concerns.	
Transportation	Refer to road files 64-75-24. Difficulty in accessing landings due to hummocky karst terrain.	Develop three roads to access landings A, C, B.
Unit Layout/ Administration	Unit designed for swing yarder with running skyline. Run profile to verify feasibility of deflection runs from each landing.	
Opportunities	Recreation enhancement opportunity by developing campsite and associated trail close to rocky shoreline.	Keep Road 64-75-24 open to potential campsite location.

BMP 12.7, 14.9, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 528-204

Acres: 13.7



- Project Boundary
- Unit 528-204
- Other Units
- Timber Type Boundary
- Eagle Nest Buffer (330ft)
- Existing Roads
- Proposed Roads
- Class I Stream
- Class IIa Stream
- Class IIb Stream
- Class III Stream

- Water
- Beach Fringe/Estuary
- Second Growth
- 200 ft contours

★ Potential Channel Type Change

F-17

March 03, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 528-204

Harvest Volume : 21.8 MBF/acre

Acres : 13.7

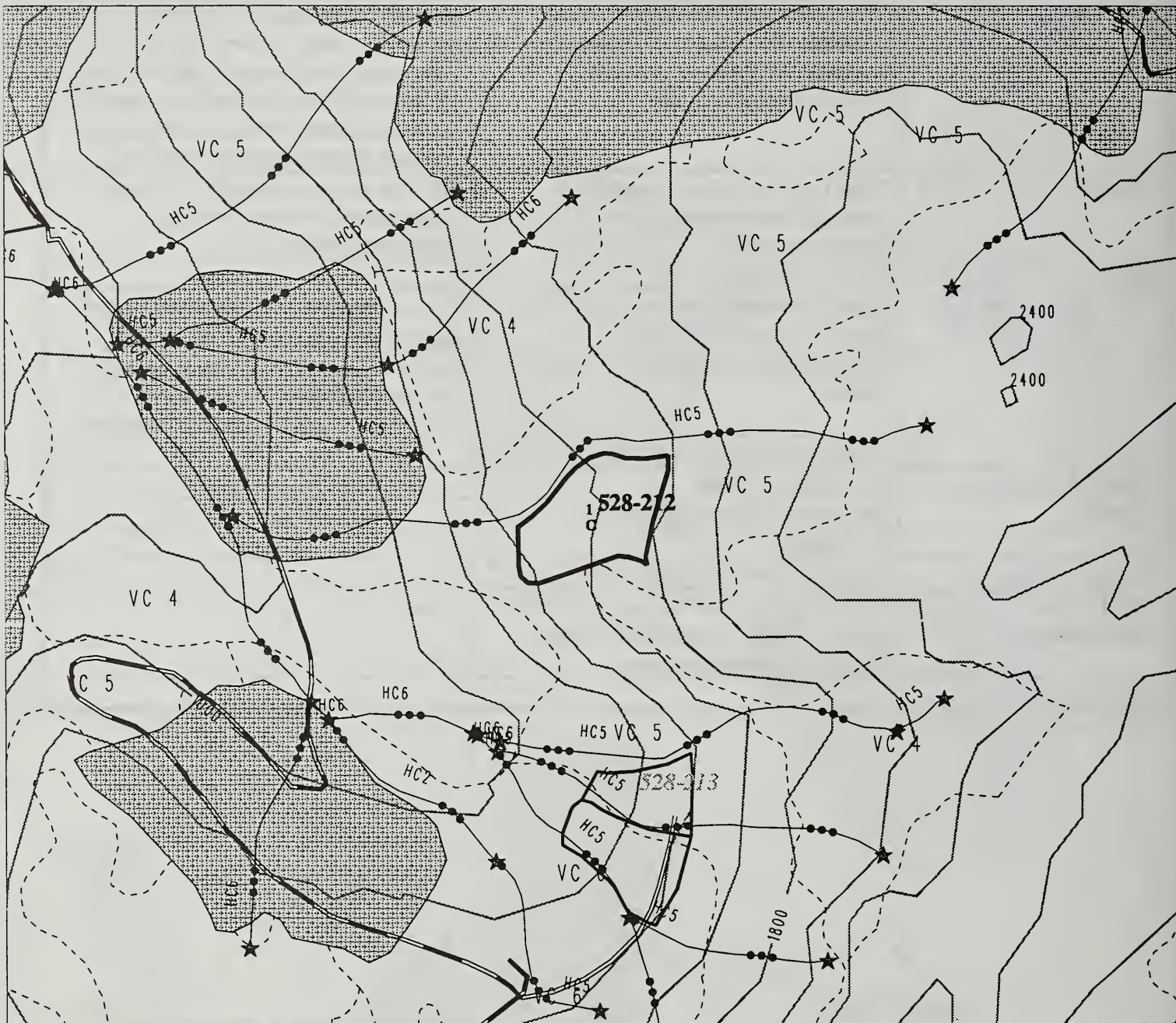
Resource Area	Concerns	Resolution
Silviculture	Minimize soil disturbance to reduce establishment of red alder. Mistletoe in overstory. Windthrow potential. Yellowcedar regeneration.	Achieve partial suspension throughout majority of unit. Harvest Type F. Concentrate retention of cedar near roads for potential future independent sales. Do not retain western hemlock; thin western hemlock regeneration during harvest.
Fisheries	Class I stream (below waterfall) accessible to anadromous fish - ADF&G reports coho use.	100-foot no-harvest buffer on Class I stream along west and south unit boundaries. BMP 12.7.
Soils	No special concerns.	
Water Quality/Quantity	Class III stream above waterfall feeds directly into a Class I stream.	Put unit boundary on topographic break above creek. BMP 12.7, 13.2, 13.9.
Wildlife	Fragmentation of continuous forest travel corridor.	Unit was laid out 500' from clearcut to the east; maintains travel corridor. This will achieve Level 1 structure retention.
Karst	No karst resources identified.	
Visuals/Recreation	No special concerns.	
Cultural	No cultural resources identified.	
Lands	No concerns.	
Transportation	Two short spurs into unit.	
Unit Layout/ Administration	Unit designed for swing yarder with four settings - partial suspension available except on southeast setting.	
Opportunities		

BMP's 12.7, 13.2, 13.9.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 528-212

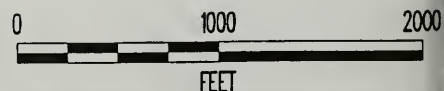
Acres: 11.8



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|--|---------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 528-212 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |

★ Potential Channel Type Change

F-19



March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 528-212

Harvest Volume : 27.6 MBF/acre

Acres : 11.8

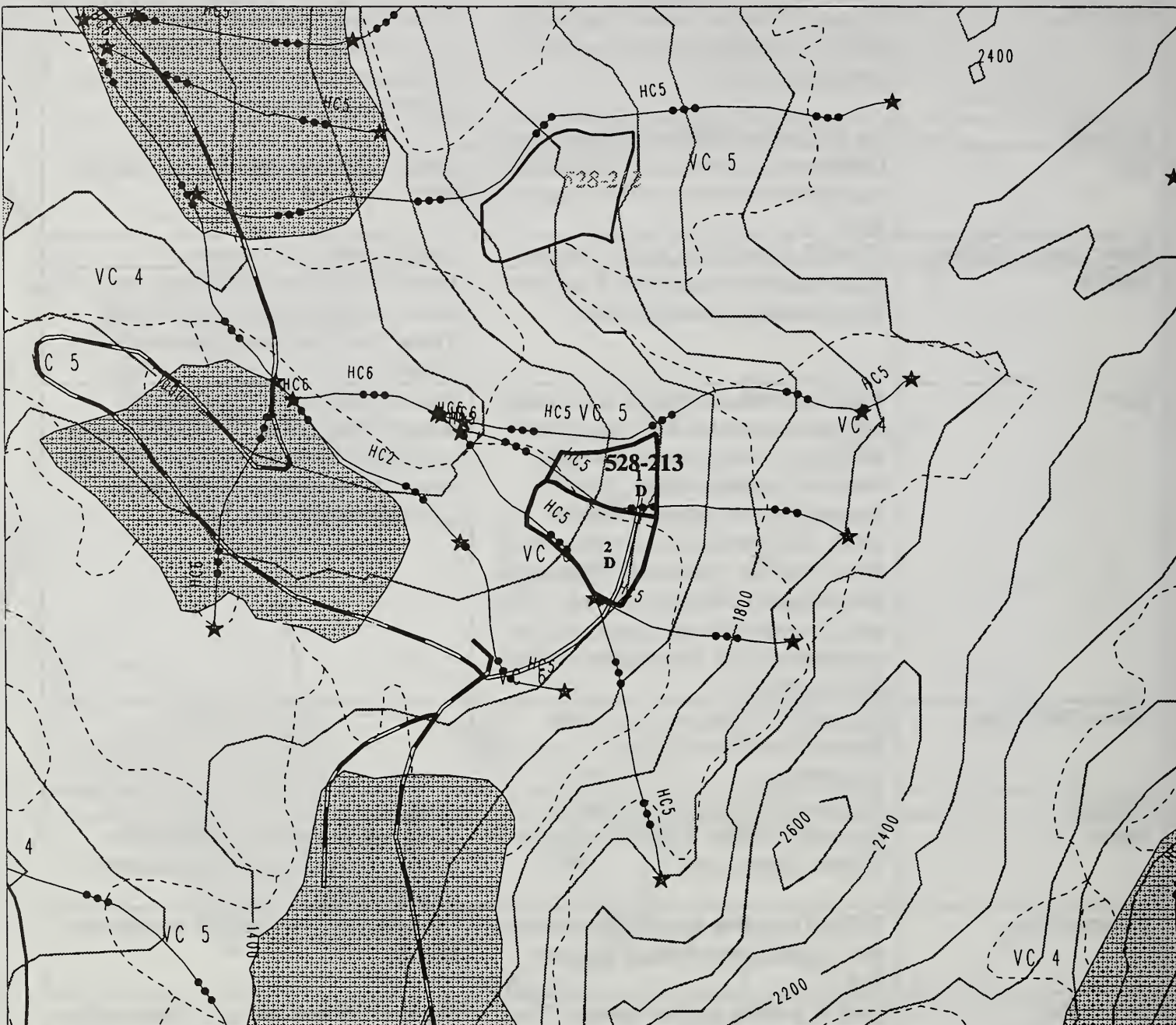
Resource Area	Concerns	Resolution
Silviculture	Proposed sensitive species of sub-alpine fir along top margin of boundary and along road location.	No way possible to avoid minor impacts with conventional logging systems. Helicopter yarding avoids concern area. Regeneration Harvest Type C.
Fisheries	No fish habitat within or adjacent to unit.	
Soils	Concave topography results in moderate risk of mass movement in deep upper unit soils.	Partial suspension throughout entire unit. BMP 13.5, 13.9.
Water Quality/Quantity	Class III stream along north boundary.	Logical north unit boundary.
Wildlife	Disturbance of volume class 4 and entry into previously unaltered forest.	Maintain blind leads associated with bluffs on southeastern portion of unit. This will achieve Level 1 structure retention.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to karst features, thin soils, elevation, and steep slopes. Karsted topography with potential sinks and caves. East portion of unit within north Perue Peak SIA (proposed). Road 64-76-34 has karsted feature along route. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Portion of unit within SIA has been deferred. Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers.
Visuals/Recreation	No special visuals concern. Future recreation conflicts with cave explorations.	
Cultural	No cultural resources identified.	
Lands	East unit boundary adjacent to proposed Special Interest Area.	Defer east portion of unit within SIA. Survey Special Interest Area boundary prior to final layout.
Transportation	Difficulty roading through extensive karst area. Road located through proposed SIA.	Change unit harvest method to helicopter yarding.
Unit Layout/ Administration	Lack of suitable guy line anchors. Two difficult bluffs creating blind lead problems. Unit evaluated for live skyline, 90 foot tower.	Require rock bolt anchors. Omit southern portion of paper unit. Helicopter yarding is feasible. Adjust unit boundary, if necessary, to remain outside of Special Interest Area.
Opportunities	Vista overlooks and interpretive trail to Karst areas of North Perue Peak.	

BMP's 13.5, 13.9.

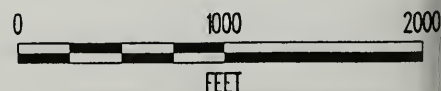
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 528-213

Acres: 13.1



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|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 528-213 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 528-213

Harvest Volume : 28.0 MBF/acre

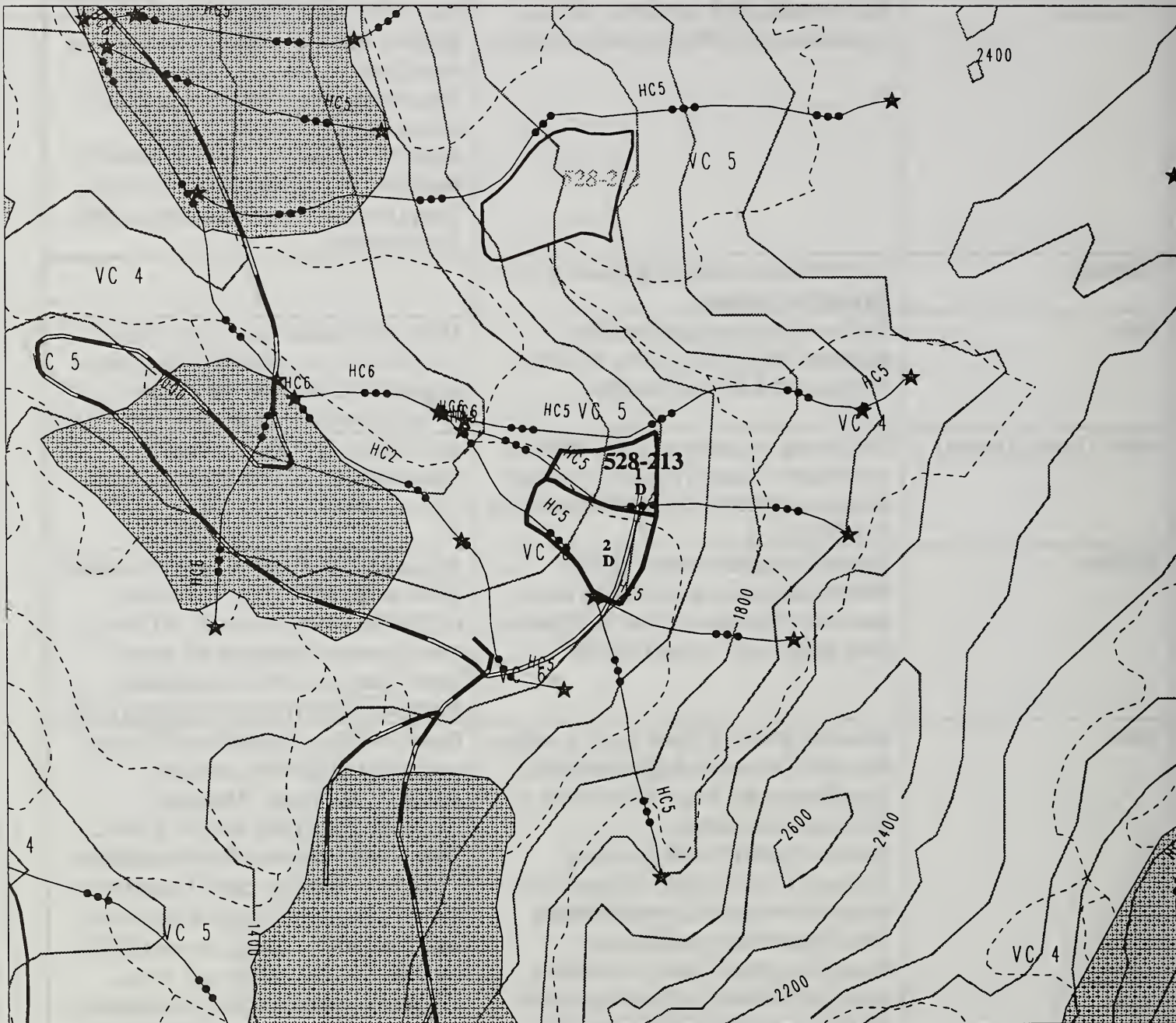
Acres : 13.1

Resource Area	Concerns	Resolution
Silviculture	Shallow soils, high elevation - difficult regeneration in cliffs along east boundary.	Move east boundary down to 1600' elev. Remove area from suitable base (>5 year regen.; productivity <20 cf/acre/year). This area also identified for retention by resource specialists. Site-specific retention area near cave was identified by field personnel. Regeneration Harvest Type D recommended with areas $\geq 70\%$ slope retained.
Fisheries	No fish habitat within or adjacent to unit - no perennial streams.	
Soils	Shallow soils along east boundary - numerous 20-30' cliffs above 1600 feet. Shallow instability below cliffs.	Move east boundary to below cliffs (<1600 ft elev.). Achieve at least partial suspension in this area above road - downhill yarding. BMP 13.2, 13.5, 13.9
Water Quality/Quantity	No flowing streams in unit; dry channels not incised. Class III stream along south boundary - potential to transport sediment downstream.	Mark south unit boundary along topographic break above stream. BMP 12.6, 13.2, 13.3
Wildlife	Potential peregrine habitat at cliffs. Wildlife use heavy along base of cliffs, and at north boundary (bear hair found in cave, game trails at base of cliff).	Adjust north and east boundaries to retain buffer along cliffs. Retain windfirm (<12" dbh) vegetation within 100 feet of cave entrance; directional fall away. Level 1 structure will be maintained through retention of structure along cliffs.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to karst features, elevation, thin soils, and steep slopes. Cave just north of north boundary (Cassady's Cave). Series of small cave entrances proximal of north boundary (see Tongass Cave project note). Numerous vertical shafts in limestone along east boundary. There is potential for finding additional significant karst features in or adjacent to unit. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Retain windfirm vegetation (<12" dbh) within 100 feet of cave entrance; directional fall away. Move east boundary below cliffs to 1600 ft. elev.; Directionally fall away from resurgences and caves. Achieve partial suspension due to steep slopes and/or thin soils on karst. Avoid yarding over significant karst features (caves, vertical shafts, sinkholes, or insurgences). Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers. Prior to harvest, geotechnical investigation needed to determine stability of road location across karst. BMP 14.9, 14.10, 14.19

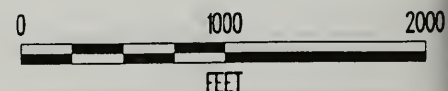
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 528-213

Acres: 13.1



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 528-213 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD

LAB BAY PROJECT AREA

Unit #: 528-213 (Continued)

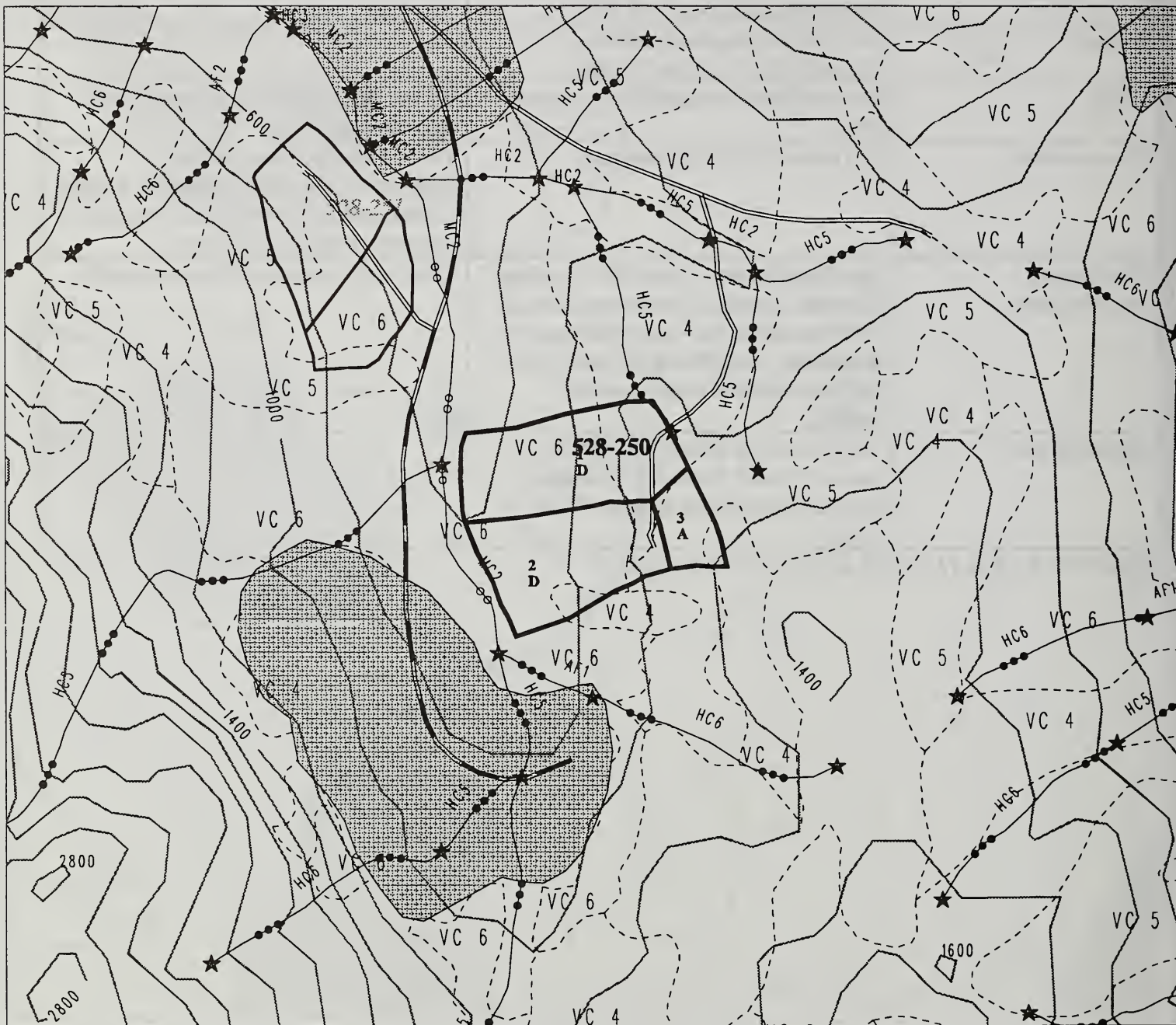
Visuals/Recreation	No special visual concerns. Adjacent to proposed north Perue Peak SIA.	Trail opportunity exists.
Cultural	No cultural resource identified - Cassady's Cave was investigated.	
Lands	East unit boundary adjacent to proposed SIA.	Survey Special Interest Area boundary prior to final layout.
Transportation	850 feet of full bench; blasting.	Prior to harvest, geotechnical investigation needed to determine stability of road location across karst. End haul to approved spoil disposal area.
Unit Layout/ Administration	Small landing size - could move landing #2 uphill. Move east boundary down to 1600 feet elevation - better tail trees and deflection. Use running skyline. Achieve partial suspension where downhill yarding.	Close road upon completion of harvest.
Opportunities	Trail into north Perue Peak SIA and access to peak. Harvest blowdown on north side of existing clearcut; swing yard.	

BMP's 12.6, 13.2, 13.3, 13.5, 13.9, 14.9, 14.10, 14.19.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 528-250

Acres: 38.0



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 528-250 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 528-250

Harvest Volume : 18.1 MBF/acre

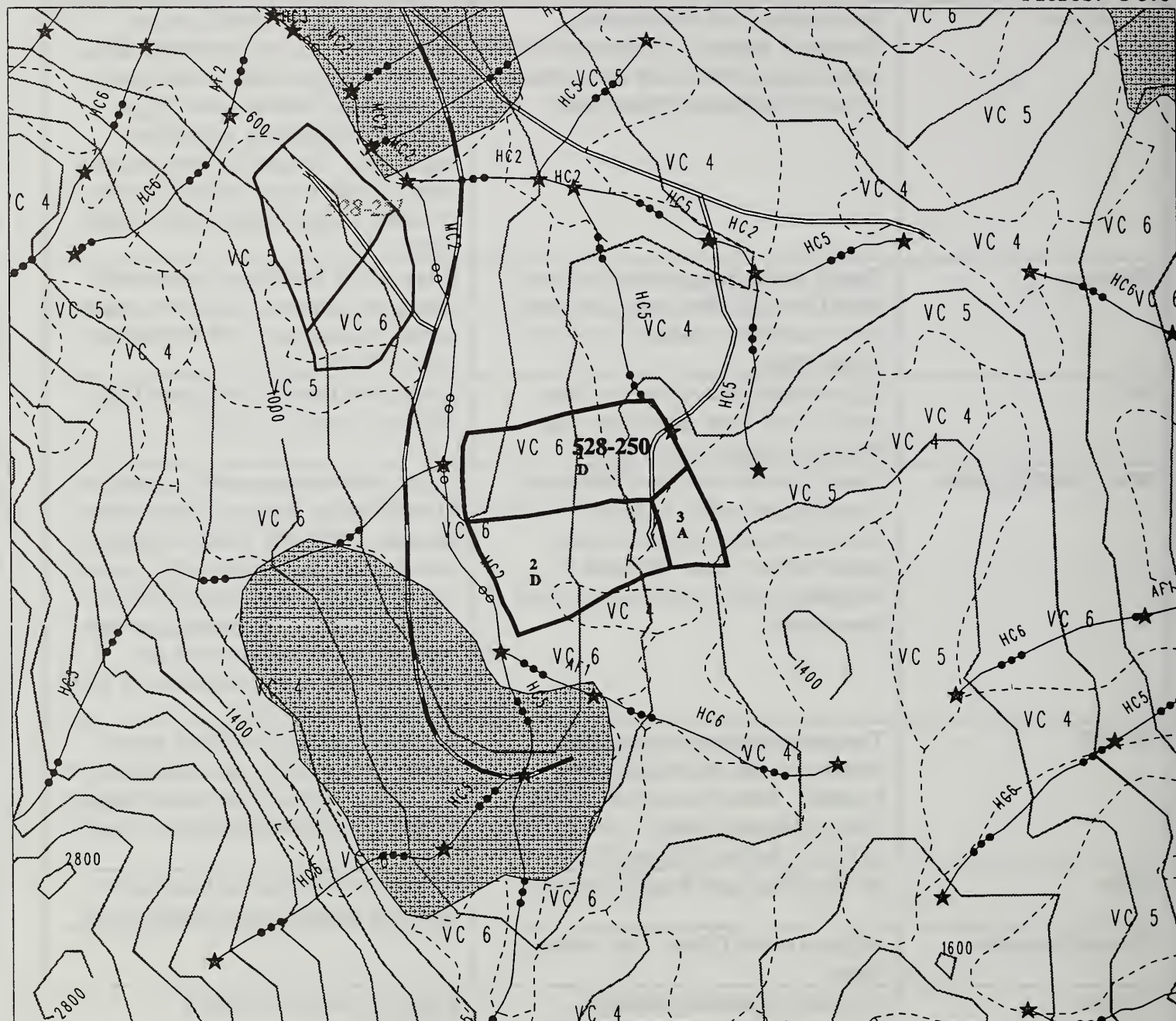
Acres : 38.0

Resource Area	Concerns	Resolution
Silviculture	Overstocking. Red alder stocking. Windthrow potential. Saturated and rocky soils. Slope stability. Slide areas present within and adjacent to timber stand.	Harvest Type D with retention area (setting 1); Type D with retention areas (setting 2); Type A harvest for setting 3. PCT and alder control within 20 yrs. Avoid soil disturbance with partial suspension. Site specific retention areas within the unit were identified by field personnel to meet the specified Concern Level.
Fisheries	Class II stream along west edge (flows into a Class III). Need trees along bank for root structure, shading, and large woody debris.	Retain 50-75' buffer from streambank - emphasize retention of windfirm trees in buffer - remove trees >20" dbh within buffer. BMP 12.7
Soils	Strip of small, dense trees in central portion of unit is old slide area. High MMI soils where slopes >60%.	Retain these trees and yard away from this area. BMP 13.5, 13.9
Water Quality/Quantity	Class III stream along south boundary flows through healed debris slide. 3 other Class III streams on west side - not deeply incised. Class III stream in northeast portion of unit - more incised downstream.	Locate south unit boundary just north of Class III stream flowing along southwest boundary. (CT6.51) Remove logging-related debris. Locate boundary on west side of stream flowing along northeast boundary. Special measures to prevent sediment from entering stream are necessary during road construction. BMP 13.16, 14.9, 14.6, 14.10
Wildlife	Two small meadows located along northeast corner and middle of east boundary. Meets parameters for high quality goshawk habitat. Located within an Project-defined medium HCA.	Level 1 structure by retaining stands within 70' of meadow and maintaining 4 leave tree inclusions w/in unit as mapped. Survey unit for goshawks prior to final layout.
Karst	No significant karst features observed.	Personnel conducting final unit layout should be trained in karst identification.
Visuals/Recreation	Adjacent to Mt. Calder - very visible to hikers.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires construction of Rd #65-77-12 to STA 20+00 and Rd #65-77-12.1 to STA 29+34. 100' of full bench and muskeg crossings on Rd #65-77-12.1.	Close road upon completion of harvest.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 528-250

Acres: 38.0



- | | | | |
|---|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 528-250 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| ★ | Potential Channel Type Change | | |



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 528-250 (Continued)

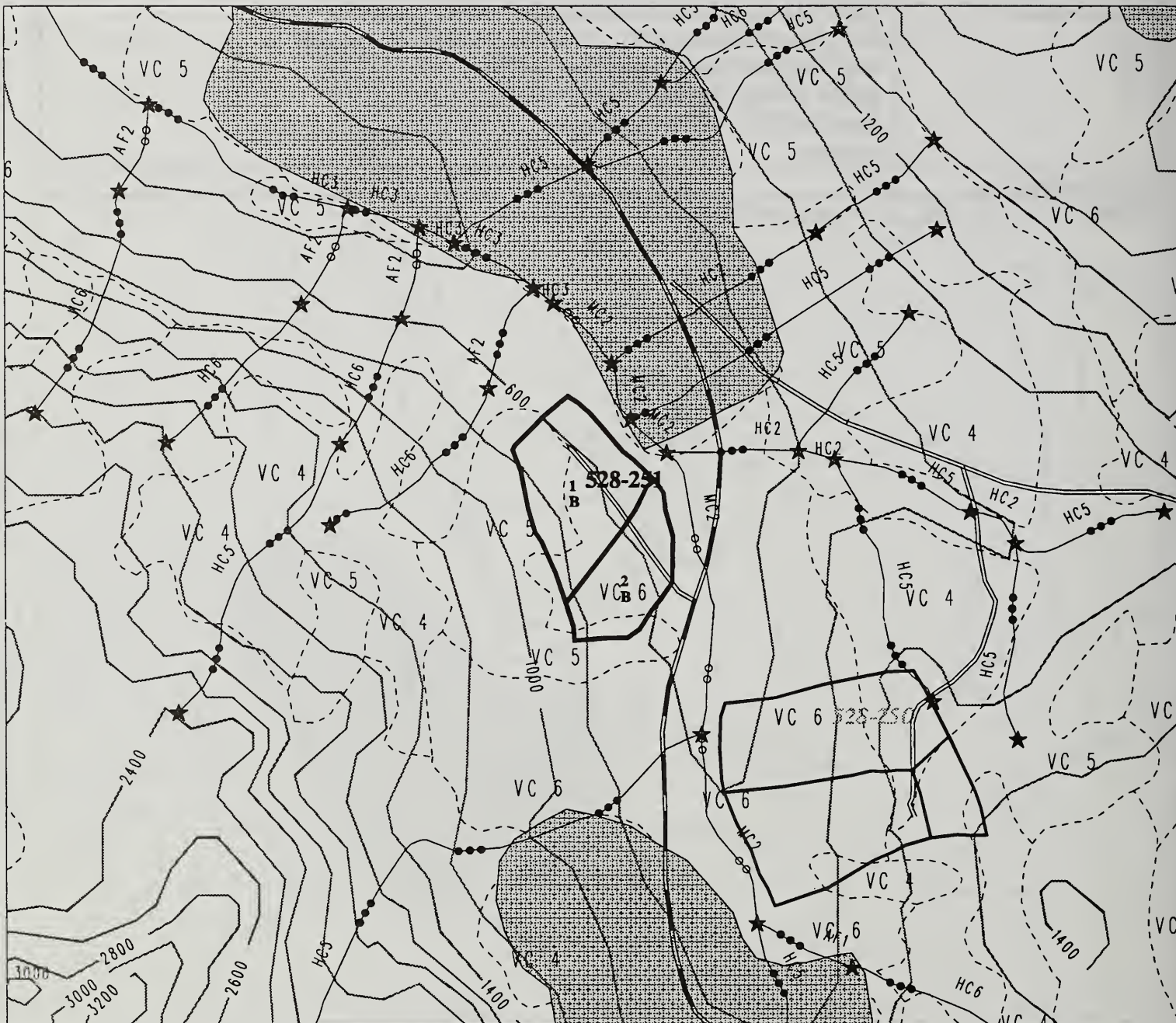
Unit Layout/ Administration	Split yard around old slide area. Guyline anchors for landing 23+50 marginal to east. Use artificial anchors. requires large slackline (3 drum) yarder using live skyline system. Tailholds across Class II stream w/50-75' buffer on west unit boundary.	
Opportunities		

BMP's 12.7, 13.5, 13.9, 13.16, 14.6, 14.9, 14.10

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 528-251

Acres: 22.7



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 528-251 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 528-251

Harvest Volume : 28.8 MBF/acre

Acres : 22.7

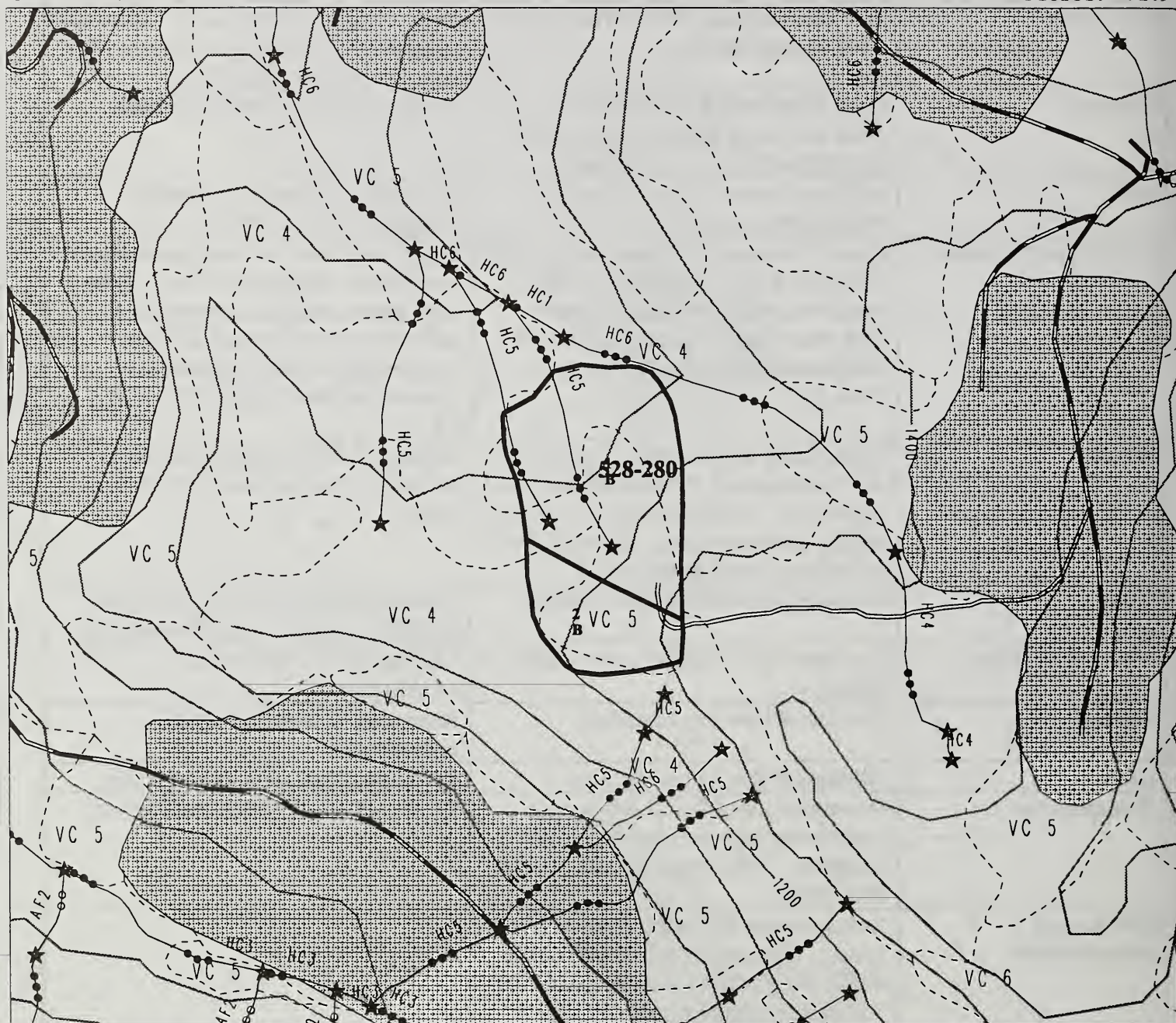
Resource Area	Concerns	Resolution
Silviculture	Red alder stocking. Windthrow potential. Slope stability concerns.	Regeneration Harvest Type B. Avoid soil disturbance with partial suspension. PCT and alder control within 20 yrs.
Fisheries	Class II stream along east boundary. Need trees along bank for root structure, shading, and large woody debris.	Retain 100' buffer from streambank.
Soils	High MMI soils - relatively deep and erodible when disturbed.	Achieve at least partial suspension throughout unit. BMP 13.9, 12.17
Water Quality/Quantity	Class III streams with V-notches to north and south of unit - high potential to transport sediment to Class II stream. Two other Class III streams within unit - also potential for sediment transport to Class II.	Locate north and south unit boundaries on topographic break above stream. Split yard where possible - if not possible, achieve partial suspension and use bumper logs to protect channel at crossing location. BMP 12.7, 14.10, 14.17
Wildlife	High quality wildlife habitat; including deer winter range. Past harvest south and east of unit. Meets parameters for high quality goshawk habitat. Located within an Project-defined medium HCA.	Maintain Level 1 structure retention. Survey unit for goshawks prior to final layout.
Karst	No significant karst features observed.	Personnel conducting final unit layout should be trained in karst identification.
Visuals/Recreation	On flanks of Mt. Calder - highly visible to hikers.	Unit meets VQO (Maximum Modification).
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	Adjacent to Special Interest Area.	Locate boundary prior to final layout.
Transportation	Reconstruction of Rd. 29 bridge and replacement of culvert required. Construct 13+85 stations of new Rd (Rd #65-76-13).	Close road upon completion of harvest.
Unit Layout/ Administration	Swing yarding with running skyline system. Guy anchors limited on landing 5+50. Need to move west boundary 100'-150' east for partial suspension. There are Class III streams in unit.	
Opportunities		

BMP's 12.7, 12.17, 13.9, 14.10, 14.17

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 528-280

Acres: 41.9



- | | | | |
|--|---------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 528-280 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |

★ Potential Channel Type Change

F-31



March 03, 1995

UNIT PLAN & LAYOUT CARD

LAB BAY PROJECT AREA

Unit #: 528-280

Harvest Volume : 19.9 MBF/acre

Acres : 41.9

Resource Area	Concerns	Resolution
Silviculture	Regeneration along NW and NE unit boundaries. Maintaining cedar component in northern 1/2 of unit. Probable red alder and salmonberry incursion due to soil disturbance. Windthrow potential.	Partial suspension requested throughout unit. Regeneration Harvest Type B. Select yellowcedar for retention in north portion.
Fisheries	One Class III stream along north unit boundary. Two Class III bisecting unit. No fisheries concerns.	
Soils	High MMI soils where slopes exceed 60%	Partial suspension required where slopes exceed 60%. Try to achieve full suspension across stream in north part of unit. BMP 13.5, 13.9
Water Quality/Quantity	One Class III stream on north boundary has large slide on bank opposite of unit.	Put north unit boundary on topographic above stream to retain vegetation within inner gorge. BMP 12.7, 13.2, 14.10, 14.13
Wildlife	Reduction of diverse forest structure especially large diameter hemlock in central portion of unit.	Level 1 structure retention through harvest prescription.
Karst	Not karsted.	Avoid filling or channeling of road drainage into caves, vertical shafts, sinkholes, or insurgences.
Visuals/Recreation	No special concern.	
Cultural	No cultural resources identified.	Report cultural findings to Forest archaeologist.
Lands	No concerns.	
Transportation	70% of spur Rd. 65-76-07 travels through extensive forested muskeg. Road in unit near top of recent slide.	Need to assess depth to bedrock. Recommend extending road 300 ft north to access alternative landing site. Keep road on ridge at top of unit. Close road upon completion of harvest.
Unit Layout/Administration	Live skyline yarder with haulback desirable along east boundary. Rest of unit shotgun. Entire unit uphill yarding. In northwest corner, multiple tailholds required.	Locate landings to yard around slide area.
Opportunities		

BMP's 12.7, 13.2, 13.5, 13.9, 14.10, 14.13.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 529-202

Acres: 88.4



- Project Boundary
- Unit 529-202
- Other Units
- Timber Type Boundary
- Eagle Nest Buffer (330ft)
- Existing Roads
- Proposed Roads
- Class I Stream
- Class IIa Stream
- Class IIb Stream
- Class III Stream

- Water
- Beach Fringe/Estuary
- Second Growth
- 200 ft contours

★ Potential Channel Type Change

F-33



May 23, 1995

UNIT PLAN & LAYOUT CARD

LAB BAY PROJECT AREA

Unit #: 529-202

Harvest Volume : 25.1 MBF/acre

Acres : 88.4

Resource Area	Concerns	Resolution
Silviculture	Mistletoe on east end of unit. Salmonberry incursions. Overstocking may occur. Riparian soils along east unit boundary.	5 of 6 settings are Regeneration Harvest Type B; center setting is Harvest Type D with retention area. Clearcut mistletoe infestations. Explore opportunities to conduct sanitation cut to remove heavily infested mistletoe trees on riparian soils along east boundary. PCT at 20 years following harvest.
Fisheries	Two Class I streams were identified proximal to unit on west and east boundaries. One Class III stream identified in southwest portion of unit, but no special concern.	Maintain a minimum of 100-foot buffer on both streams. The west boundary stream is actually beyond 100 feet due to muskeg and associated poor timber.
Soils	Riparian soils associated with Class I stream along east unit boundary.	Move east unit boundary to approx. 350' from stream to prevent harvest on riparian soils. BMP 12.6, 13.2
Water Quality/Quantity	No special concerns.	
Wildlife	Loss of forest structure in basin area. Concern for increased access and resulting disturbance. Unit is within Trumpeter swan winter habitat. Meets parameters for high quality goshawk habitat.	Maintain minimum of Level 1 structure by maintaining forest within at least 100 feet of two Class I streams and 3 acre leave tree island within central portion of unit. Implement 1/2 mile disturbance buffer if swans are present. Survey unit for goshawks prior to final layout.
Karst	No special concern. Not karsted area.	
Visuals/Recreation	No special visual or recreation concern.	
Cultural	No special concern.	
Lands	No special concern.	
Transportation	No special concern.	Close road upon completion of harvest.
Unit Layout/ Administration	Unit designed for swing yarder, running skyline.	
Opportunities	Low elevation winter harvest units.	

BMP's 12.6, 13.2.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 529-212

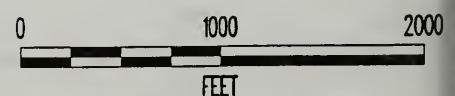
Acres: 32.4



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|--|---------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 529-212 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |

★ Potential Channel Type Change

F-35



March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 529-212

Harvest Volume : 23.7 MBF/acre

Acres : 32.4

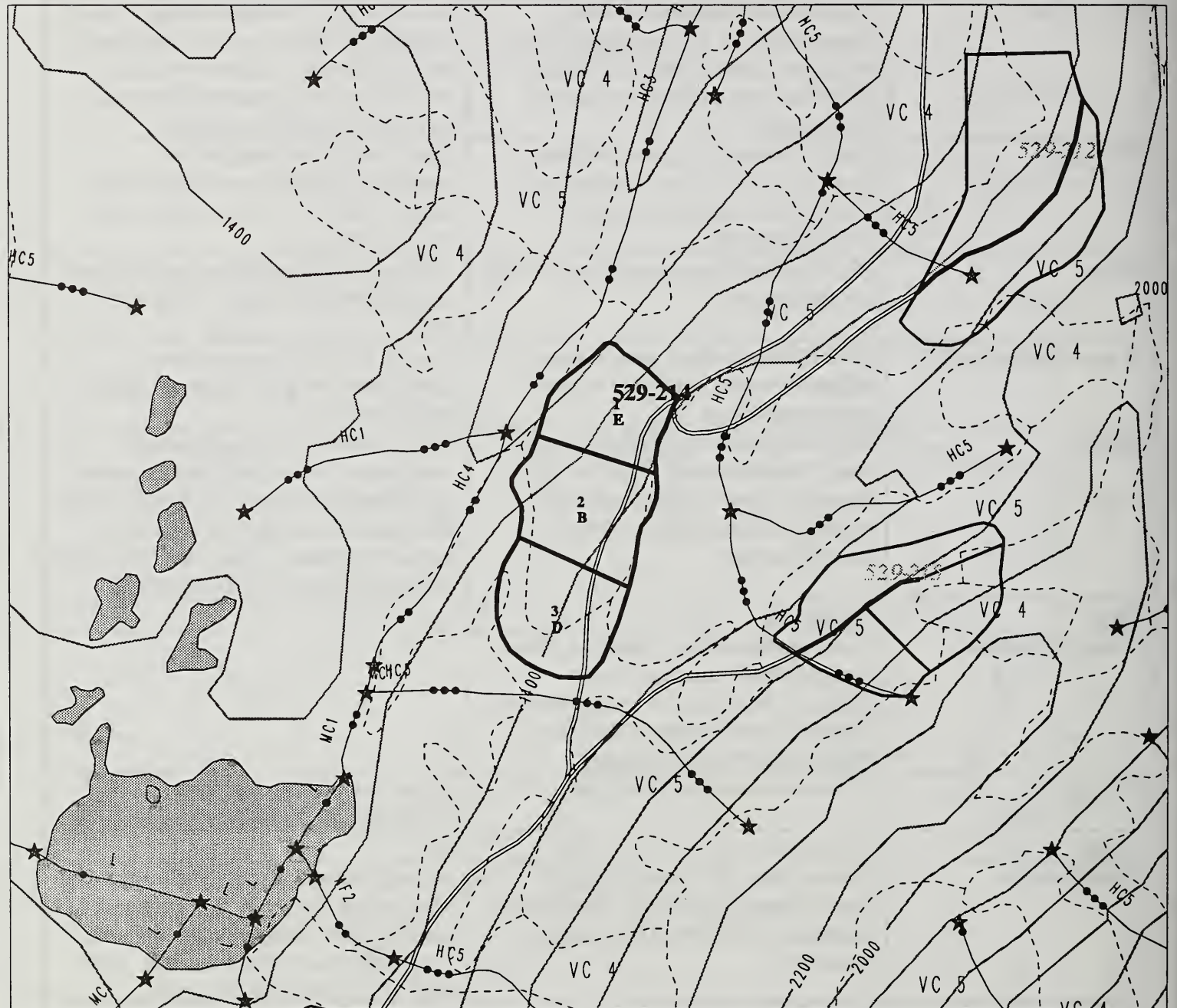
Resource Area	Concerns	Resolution
Silviculture	Unit contains many small muskegs. Upper portion of unit is generally more productive. Clearcutting would likely reduce the presence of yellowcedar in future stand.	Harvest Type D in upper setting. Type E harvest in middle elevations below upper road; select yellowcedar for retention. PCT in 20 years, selecting yellowcedar and Sitka spruce for retention.
Fisheries	Class III stream along west boundary flows into Class II stream below unit. Class I stream crossing on Road 65-77-10 accessing unit.	Logical west unit boundary on topographic break above stream (blind lead). BMP 12.7, 12.11, 14.6, 14.10, 14.16, 14.17.
Soils	High MMI soils on steeper slopes upslope of road location.	Achieve at least partial suspension where downhill yarding to road. BMP 13.5, 13.9
Water Quality/Quantity	Class III stream along west boundary influences water quality downstream - steep upper banks.	Logical West unit boundary on topographic break above stream (blind lead). BMP 12.7
Wildlife	Entry into previously undisturbed area - loss of forest structure. Increase road density in a previously unroaded area. Partially within an Project-defined wildlife corridor.	Level 1 structure retained through maintenance of cull and unmerchantable trees along unit boundary. Retain trees in blind lead area along west boundary, adjacent to stream. Close Road 65-77-10 between units 531.1-230 and 529-212.
Karst	Not karsted.	
Visuals/Recreation	Future opportunities of primitive and semi-primitive recreation lost or disturbed. High quality visual resources impacted. Meets adopted Maximum Modification VQO as designed.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Crosses Class III (V-notch in S-tip). Road network tie to Calder Creek Road is unfeasible. One Class I crossing (see Fisheries).	Allow for debris passage; pull culvert after harvest complete. Alternate road network tie to existing road needs to be field verified north from this unit. Close road upon completion of harvest.
Unit Layout/Administration	Designed for swing yarder with running skyline system. Run additional profiles to verify partial suspension.	
Opportunities	Primitive recreation opportunities. Trail access.	

BMP's 12.7, 12.11, 13.5, 13.9, 14.6, 14.10, 14.16, 14.17

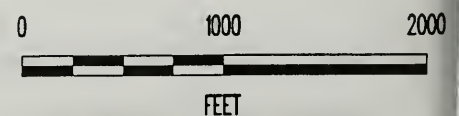
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 529-214

Acres: 35.2



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 529-214 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 529-214

Harvest Volume : 21.7 MBF/acre

Acres : 35.2

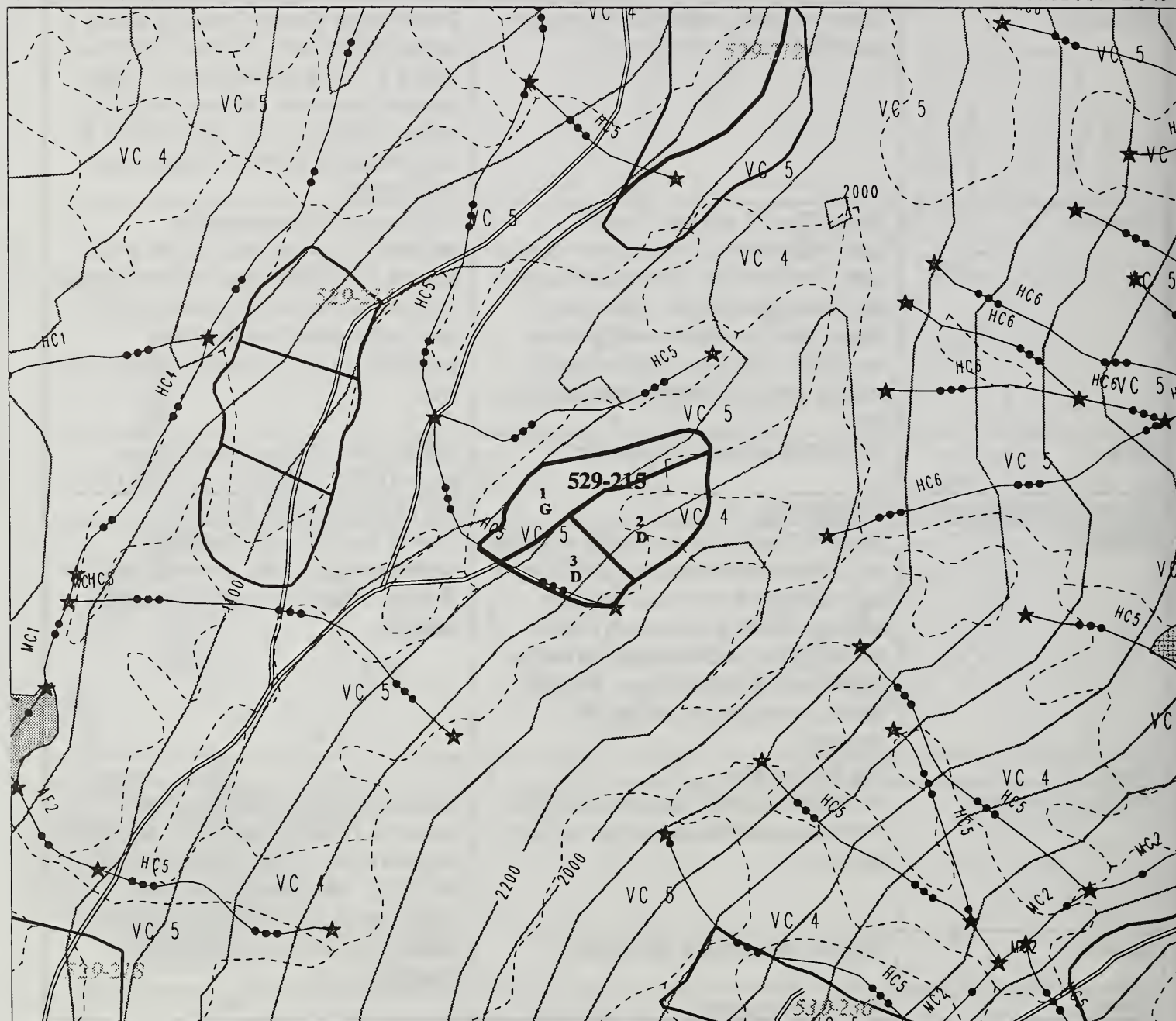
Resource Area	Concerns	Resolution
Silviculture	Slope instability. Salmonberry and alder incursions. Shallow/rocky soils.	Regeneration Harvest Type B in setting 2 (central 1/3 of unit). Harvest Type D in setting 3, with leave-tree island retained for visual concerns. Harvest Type E in setting 1 (retain < ~15" dbh). PCT at 20 years following harvest. Minimize soil disturbance.
Fisheries	Three Class III and one Class II (adfluvial) streams within or proximal to unit. The two Class III streams required no special management. The Class II stream along west/northwest boundary may serve as adfluvial spawning and rearing for cutthroat trout from upstream lake.	Need to verify stream class by determining fish presence in lake and, if present, maintain at least 100-foot buffer. Unit was laid out with greater than 100-foot buffer due to logical cutting boundary (Class III streams). BMP 12.6, 14.6
Soils	High MMI soils on steep slopes.	Achieve partial slopes where slopes exceed 60%. BMP 13.5, 13.9, 12.11
Water Quality/Quantity	See Fisheries.	See Fisheries. BMP 14.10
Wildlife	Increased roading in a currently unroaded area. Forested muskeg on top of ridge and reduction of cover and structure adjacent to unit. Reduction in marten habitat quality with reduction in habitat and increased trapper access. Partially within an Project-defined wildlife corridor.	Provide variable width buffer along northeast edge of unit. Boundary laid out as such. Maintain Level 1 structure retention.
Karst	Not karsted area.	
Visuals/Recreation	Potential recreation site near lake. High recreation potential and scenic resources impacted.	Retain leave-tree island for visual concerns. Develop trail system that leads to north from lake and connects into Road 64-76-25. See Resource Inventory reports for Aesthetics and Recreation.
Cultural	No cultural resources identified.	Report to Forest archaeologist with findings in unit.
Lands	No special concern.	
Transportation	Road network tie to Calder Creek Road is unfeasible.	Alternative road network tie to existing road needs to be field verified north from this unit. Maintain Road 64-76-25 for recreation access.
Unit Layout/ Administration	Unit designed for swing yarder, running skyline, possible grapple. Guy stumps are poor. May require artificial guyline anchors.	
Opportunities	Trail system described above in recreation.	

BMP's 12.6, 12.11, 13.5, 13.9, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 529-215

Acres: 23.9



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|---|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 529-215 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| ★ | Potential Channel Type Change | | |



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 529-215

Harvest Volume : 19.6 MBF/acre

Acres : 23.9

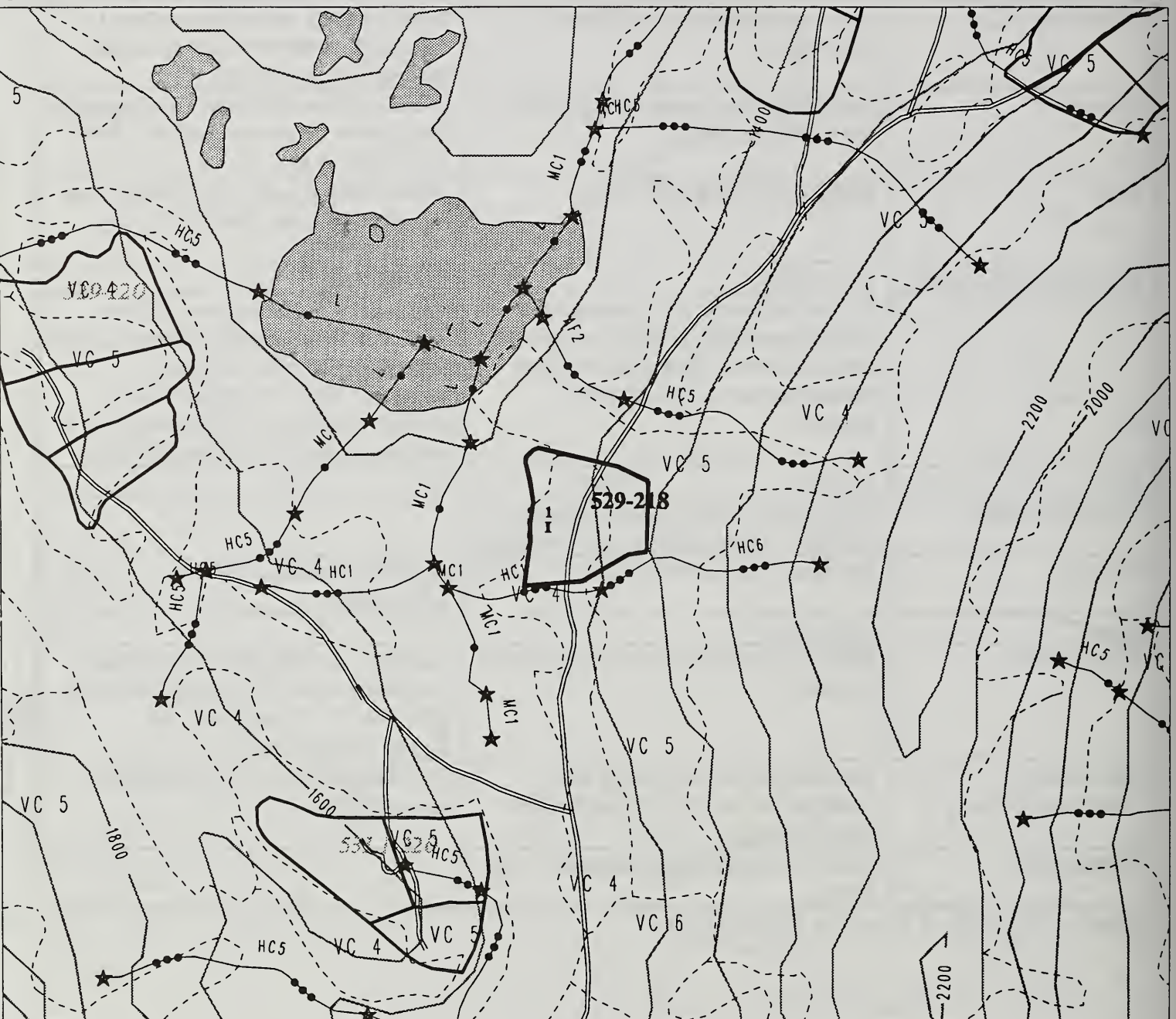
Resource Area	Concerns	Resolution
Silviculture	Low site productivity soils. Slope instability.	Type G harvest below road (setting 1). Regeneration Harvest Type D stripcut (settings 2 & 3) above road.
Fisheries	Class III streams located along the west and north boundaries.	Locate unit boundaries on the topographic break above the stream channels. BMP 12.7, 13.2, 14.6
Soils	High MMI soils on steep slopes.	Achieve partial suspension where slopes exceed 60 percent. BMP 13.5, 13.9, 12.11, 14.10
Water Quality/Quantity	See Fisheries.	See Fisheries.
Wildlife	Unit located within an Project-defined wildlife corridor. Forested muskeg to the north and south. Entry into previously undisturbed area. Loss of forest structure.	Leave a 100' buffer between unit and muskeg on ridge to south. Retain cull and unmerchantable trees along unit boundary. This will achieve Level 1 structure retention. Close Road 65-77-10 between units 531.1-230 and 529-212.
Karst	No karst.	
Visuals/Recreation	Within identified important visual area; upper 1/2 of unit visible from Perue Lake.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Road network tie to Calder Creek Road is unfeasible.	Alternate road network tie to existing road needs to be field verified North from Unit 529-214. Close road upon completion of harvest.
Unit Layout/Administration	Unit designed for large tower with slackline downhill; running skyline for uphill yarding.	Partial suspension can be achieved over most of the unit.
Opportunities	Primitive recreation opportunities. Trail access.	

BMP's 12.7, 12.11, 13.2, 13.5, 13.9, 14.6, 14.10.

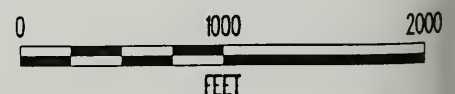
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 529-218

Acres: 12.1



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|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 529-218 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 529-218

Harvest Volume : 6.4 MBF/acre

Acres : 12.1

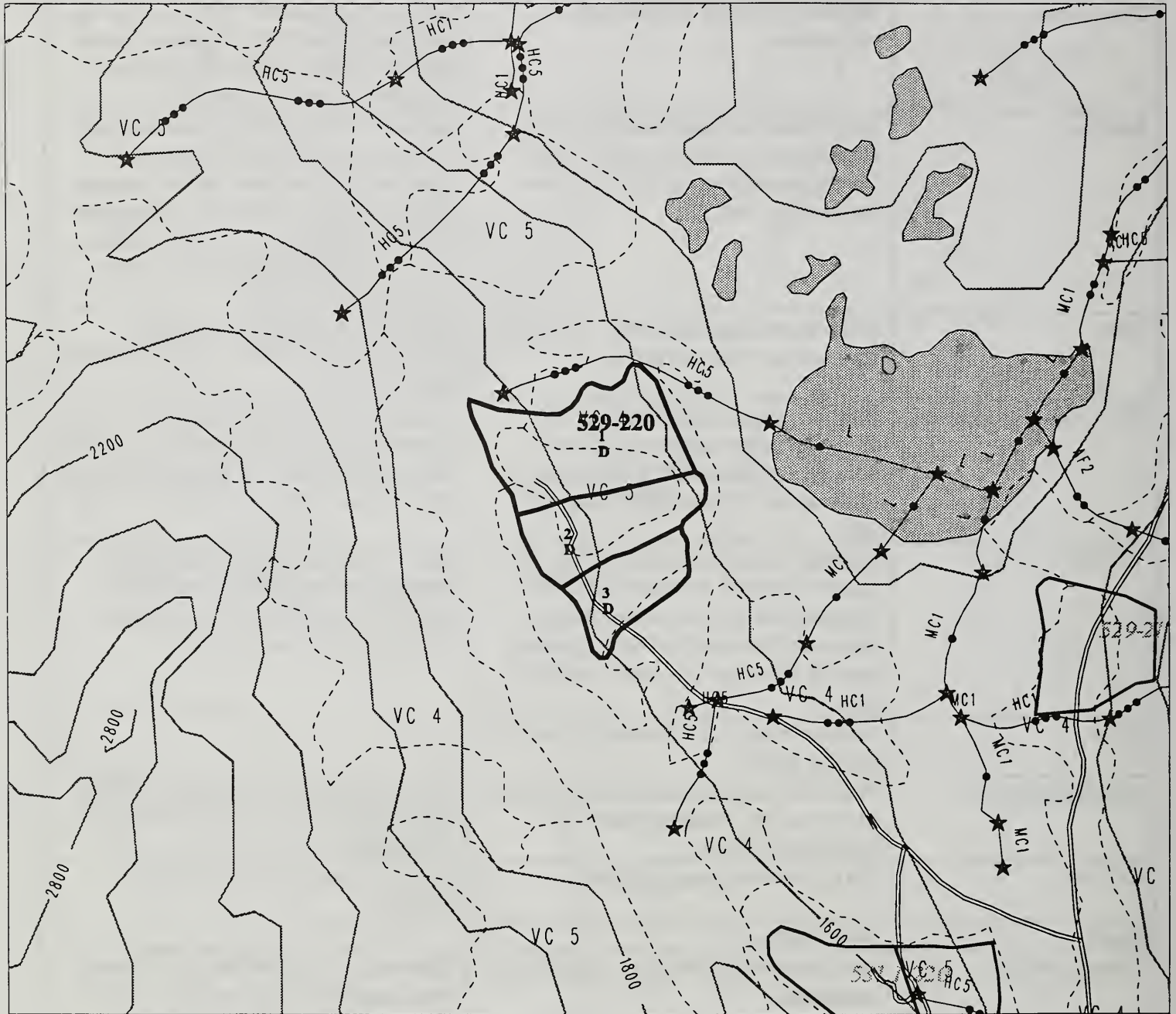
Resource Area	Concerns	Resolution
Silviculture	Mistletoe infection. Yellowcedar regeneration.	Harvest Type I above 1400' elev. (group selection); retain 70% of canopy. Retain 30% of canopy below 1400' elev. Select primarily cedar for retention.
Fisheries	Lake NW of unit may have fish. Two tributaries (to north and south of unit) have spawning/rearing habitat in lower reaches near lake.	Maintain 100 ft. buffer around lake and fish-bearing portions of streams. An additional 400' selective harvest required on Class I lake. Survey lake to determine existing water quality, presence of fish, and potential for enhancement. BMP 12.6, 14.6
Soils	Steep slopes, high MMI soils - potential for sediment transport to lake.	Achieve at least partial suspension throughout unit. BMP 13.5, 13.9, 13.12, 12.11
Water Quality/Quantity	Class III stream along south boundary. Class III stream along north unit boundary. These affect water quality in downstream fish-bearing reaches and lake.	Logical south unit boundary on topographic break above creek. Logical north unit boundary on topographic break above creek. BMP 12.7, 14.10
Wildlife	Partially within an Project-defined wildlife corridor. Reduction of cover adjacent to large, continuous muskeg areas north and south of lake. Increase roading in a large, previously unroaded area.	Level 1 structure will be maintained through harvest prescription and lake buffer. Close Road 65-77-10 between units 531.1-230 and 529-212.
Karst	No karst identified within unit boundaries or road access.	
Visuals/Recreation	Potential recreation site near lake w/high visual quality. Adopted Maximum Modification VQO.	Develop trail system leading north from lake and connecting with Road 64-76-25. Unit meets VQO.
Cultural	No cultural resources identified.	Contact Forest archaeologist if any findings.
Lands	No concerns.	
Transportation	Road network tie to Calder Creek Road is unfeasible.	Alternative road network tie to existing road needs to be field verified north of the Perue Lake area. Close road upon completion of harvest.
Unit Layout/Administration	Partial suspension cannot be achieved with conventional logging systems.	Helicopter yard.
Opportunities	See visuals/recreation.	

BMP's 12.6, 12.7, 12.11, 13.5, 13.9, 13.12, 14.6, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 529-220

Acres: 35.2



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 529-220 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 529-220

Harvest Volume : 15.2 MBF/acre

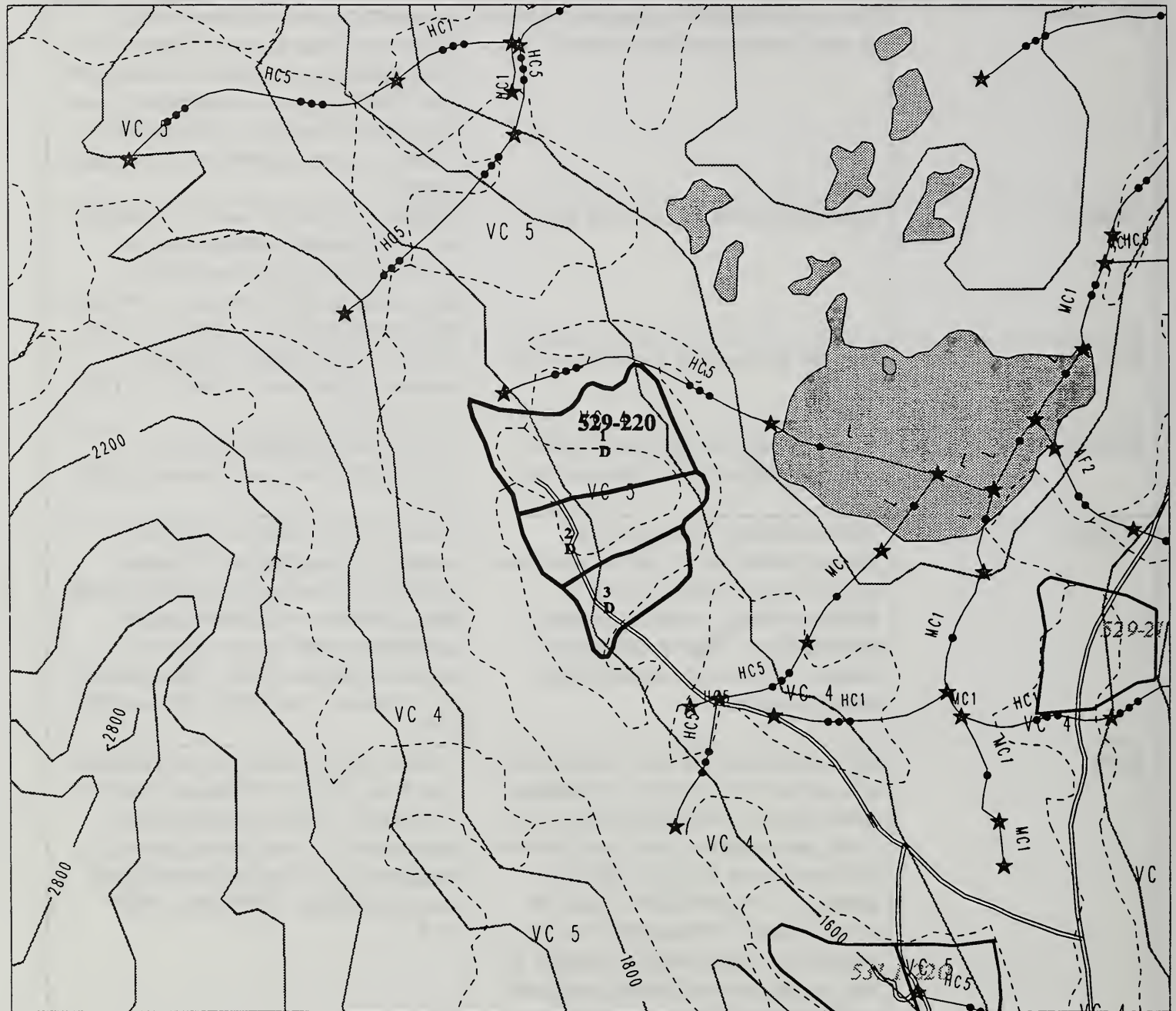
Acres : 35.2

Resource Area	Concerns	Resolution
Silviculture	Low site productivity in northeast portion of unit; comprised of yellow cedar.	Regeneration Harvest Type D, with retention of areas greater or equal to 70% slope and triangular-shaped islands below road. Partial suspend to minimize ground disturbance in northeast corner of unit. Verify adequate regeneration 3 years after harvest.
Fisheries	Potential fisheries value in lake to east.	Maintain at least 100' no-harvest buffer and additional 400' selective harvest buffer from lake. Unit was laid out approximately 300' from lake. Determine fish production in lake. BMP 12.6, 14.6
Soils	Poor site productivity in northeast corner.	Achieve at least partial suspension to minimize disturbance. BMP 13.9, 13.12, 12.11, 14.10
Water Quality/Quantity	Class III stream along north boundary with potential sediment delivery to lake.	Logical unit boundary placed at topographic break above stream. BMP 12.7
Wildlife	Removal of large diameter forest structure which would remove an isolated patch of volume class 6 structure. Increase roading in a large, previously unroaded area. High quality marten habitat would be reduced and trapper access increased.	Retain Level 1 structure. Maintain variable buffer along west boundary muskeg/meadow boundary established as such. Maintain windfirm vegetation surrounding open forest wetland in northeast portion of unit. Close Road 65-77-10 between units 531.1-230 and 529-212.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to karst features (sinkholes and cave), proximity to Class I lake, elevation and steep slopes along the SW unit boundary. "Sinkhole Cave," near SW corner of unit. On Road 65-77-22 to west of unit, minor sinks identifiable. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Avoid filling or channeling road drainage into sinks. Retain 100' forested buffer around cave. Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers. BMP 14.9
Visuals/Recreation	Potential recreation on site w/high visual quality near lake.	Establish trail system to alpine country west of lake. Recommend retaining a triangular island of timber between settings below the road to screen impact of road and create an irregular upper boundary.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 529-220

Acres: 35.2



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|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 529-220 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 529-220 (Continued)

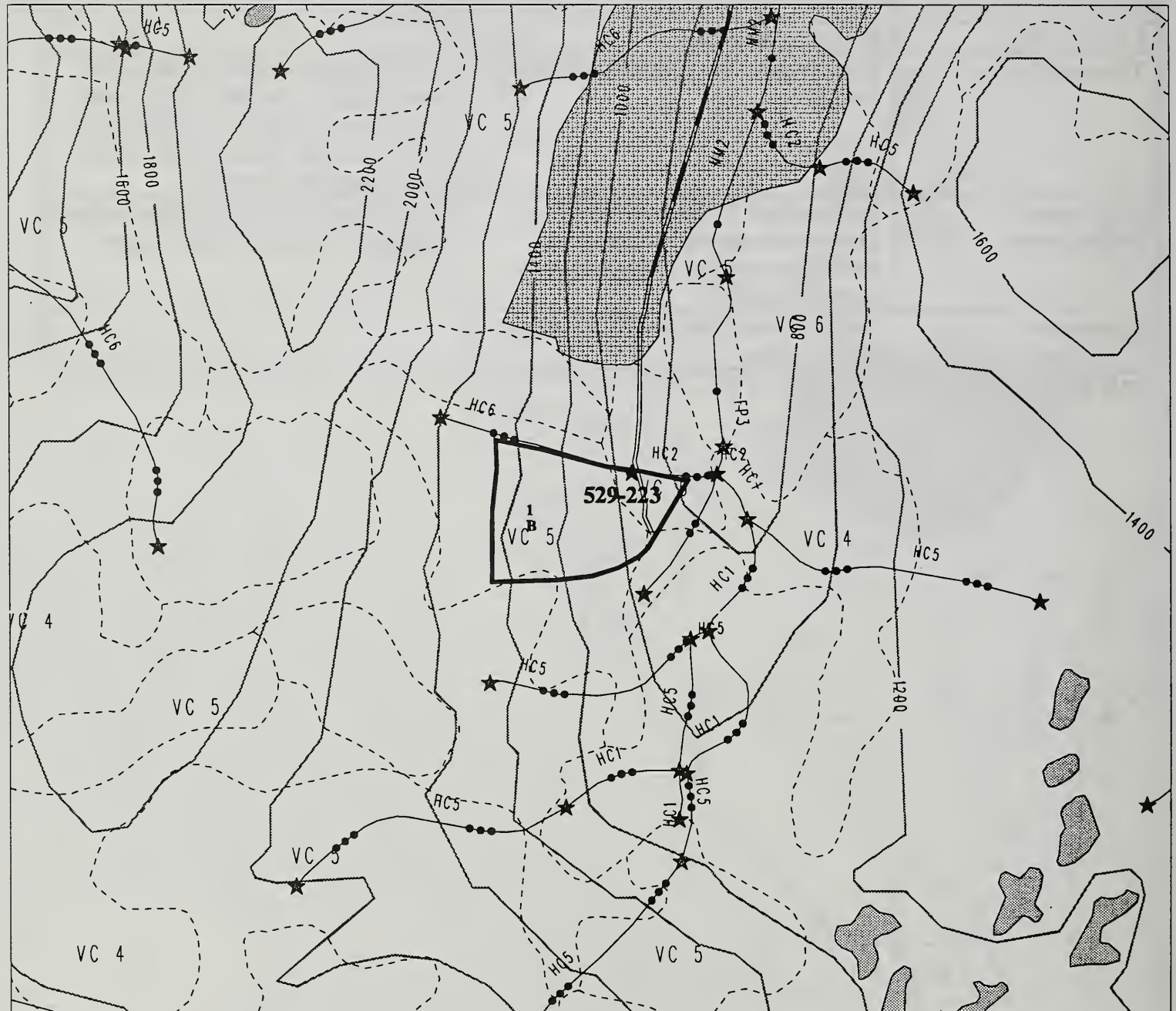
Cultural	No cultural resources identified.	Report to Forest archaeologist with findings.
Lands	No special concern.	
Transportation	Road network tie to Calder Creek Road is unfeasible.	Alternate route identified to haul north between 529-214 and Road-2085 (Alder Creek) needs to be field verified north of Perue Lake area. Close Road 65-77-10 upon completion of harvest.
Unit Layout/ Administration	Unit designed for shotgun system. Combination of swing yarding. Run profiles to verify partial suspension in north half of unit.	Retain triangular island of timber between settings below road for visuals screen.
Opportunities	Trail system to Perue Peak and angling access to lake.	

BMP's 12.7, 12.11, 13.9, 13.12, 14.9, 14.10.

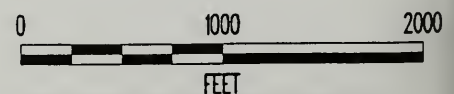
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 529-223

Acres: 18.5



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|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 529-223 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F47

March 03, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 529-223

Harvest Volume : 26.2 MBF/acre

Acres : 18.5

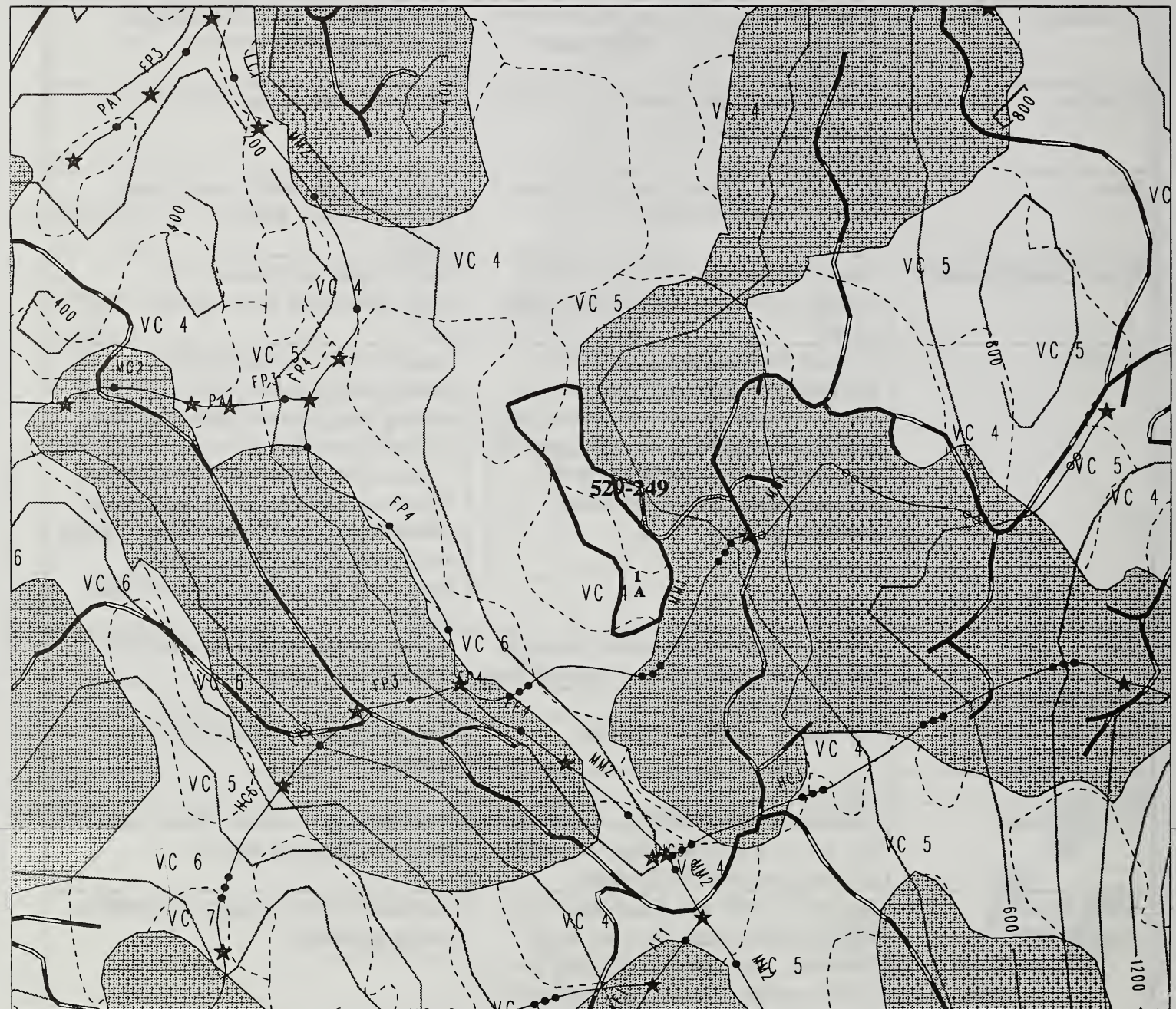
Resource Area	Concerns	Resolution
Silviculture	Slope instability. Poor site productivity to west and south of unit - yellowcedar regeneration.	Unit laid out to exclude these areas. Regeneration Harvest Type B.
Fisheries	Class II stream that flows into a Class I (head of Alder Creek) along east boundary.	100' no-harvest buffer. BMP 12.6
Soils	High MMI soils; potential for sediment transport to fish stream.	Achieve at least partial suspension throughout unit. BMP 13.5, 13.9, 13.12, 14.10
Water Quality/Quantity	Deeply incised V-notch along north boundary - potential instability on upper banks.	Logical north unit boundary on topographic break above channel. BMP 12.7
Wildlife	Concern for habitats adjacent to unit - emergent wetland and black-tailed deer vertical migration area. Valuable riparian stands along east boundary provide goose and sandhill crane habitat (observed). Meets parameters for high quality goshawk habitat.	Retain Level 1 structure through maintenance of at least 100' buffer from muskeg along east boundary; establish north unit boundary to south of prominent V-notch; 100' buffer on Class II stream. Implement operating restrictions within a minimum 125 m of goose habitat, if geese are present during critical periods. Survey unit for goshawks prior to final layout.
Karst	Conglomerate terrain; no karst concerns on unit; access road may cross karst area.	Review road alignment for possibility of crossing karst areas.
Visuals/Recreation	No special concerns.	
Cultural	No cultural resources identified.	Contact Forest archaeologist if any findings.
Lands	No concerns.	
Transportation	Midslope road not feasible; access from Rd. 2086 not feasible. Road into bottom of road is only feasible location.	Use lower road location. Close road upon completion of harvest.
Unit Layout/Administration	Size of unit restricted due to lower road location (bluffs along west and south boundary). Designed for slackline yarder, 100-foot tower. Leave upper and south part of unit for future entry - helicopter.	Additional profiles necessary to confirm partial suspension.
Opportunities		

BMP's 12.6, 12.7, 13.5, 13.9, 13.12, 14.10.

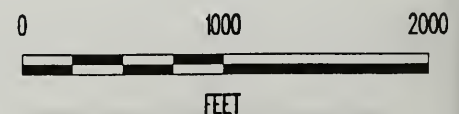
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 529-249

Acres: 12.4



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|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 529-249 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-49

May 23, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 529-249

Harvest Volume : 19.5 MBF/acre

Acres : 12.4

Resource Area	Concerns	Resolution
Silviculture	Overstocking potential in future. Saturated soils.	Regeneration Harvest Type A. PCT at 20 years plus hardwood control.
Fisheries	One Class II stream along southeast boundary may be sensitive to temperature alterations. Stream flows directly to a Class I. However unit is only along the stream's north bank.	Maintain 100' buffer along length of stream adjacent to unit and maintain unit along north side of stream. BMP 12.7
Soils	No special concern.	
Water Quality/Quantity	No special concern. (North side of temperature sensitive stream.)	
Wildlife	Forested muskeg and beaver pond to southwest and west may be disturbed. Black tail deer travel corridor to west.	Maintain vegetation associated with forested muskeg and avoid roading through beaver pond complex. Maintain vegetation complex in muskegs to west.
Karst	No special concern.	
Visuals/Recreation	No special concern.	
Cultural	No special concern.	
Lands	No special concern.	
Transportation	No special concern.	Close road upon completion of harvest.
Unit Layout/Administration	Unit designed for swing yarder. Partial suspension unattainable along 100-foot fringe on north and west boundaries due to lack of tail trees.	
Opportunities	Maintain deer travel corridor to west through nonmerchantable timber.	

BMP 12.7.

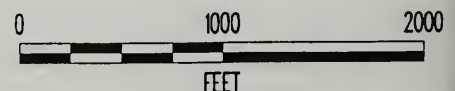
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 529-256

Acres: 14.9



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|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 529-256 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-51

March 03, 1995

UNIT PLAN & LAYOUT CARD

LAB BAY PROJECT AREA

Unit #: 529-256

Harvest Volume : 11.9 MBF/acre

Acres : 14.9

Resource Area	Concerns	Resolution
Silviculture	Low site productivity due to saturated soils - but abundant existing reproduction. Yellowcedar regeneration.	Regeneration Harvest Type B. Achieve partial suspension where possible. Select yellowcedar for green-tree retention.
Fisheries	Class I streams (Alder Cr. and tributary) to east of unit.	Minimum 100-foot buffer, plus 25'-50' selective harvest due to muskeg. Poor timber between unit and stream. BMP 12.6, 12.7
Soils	No special concerns.	
Water Quality/Quantity	No special concerns. No streams in unit.	
Wildlife	Reduction of abundance of large diameter trees in the area. Reduction of deer winter range thermal cover. Unit is within Trumpeter swan winter habitat.	Level 1 structure retention through maintenance of trees along Alder Creek and tributaries to east of unit. Implement 1/2 mile disturbance buffer if swans are present.
Karst	No karst features identified.	
Visuals/Recreation	Not visible to Rd 20. Potential to develop trail access to Alder Creek.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Road passes through wet area for approximately 1000'.	Will require extra rock and debris reinforcement. Close road upon completion of harvest. BMP 14.10, 14.13
Unit Layout/Administration	Designed for swing yarding; partial suspension obtainable except for approx. 100 foot fringe along edges due to lack of tail trees.	
Opportunities	Potential for trail access to Alder Creek.	

BMP's 12.6, 12.7, 14.10, 14.13.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 529-257

Acres: 7.1



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|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 529-257 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 529-257

Harvest Volume : 16.6 MBF/acre

Acres : 7.1

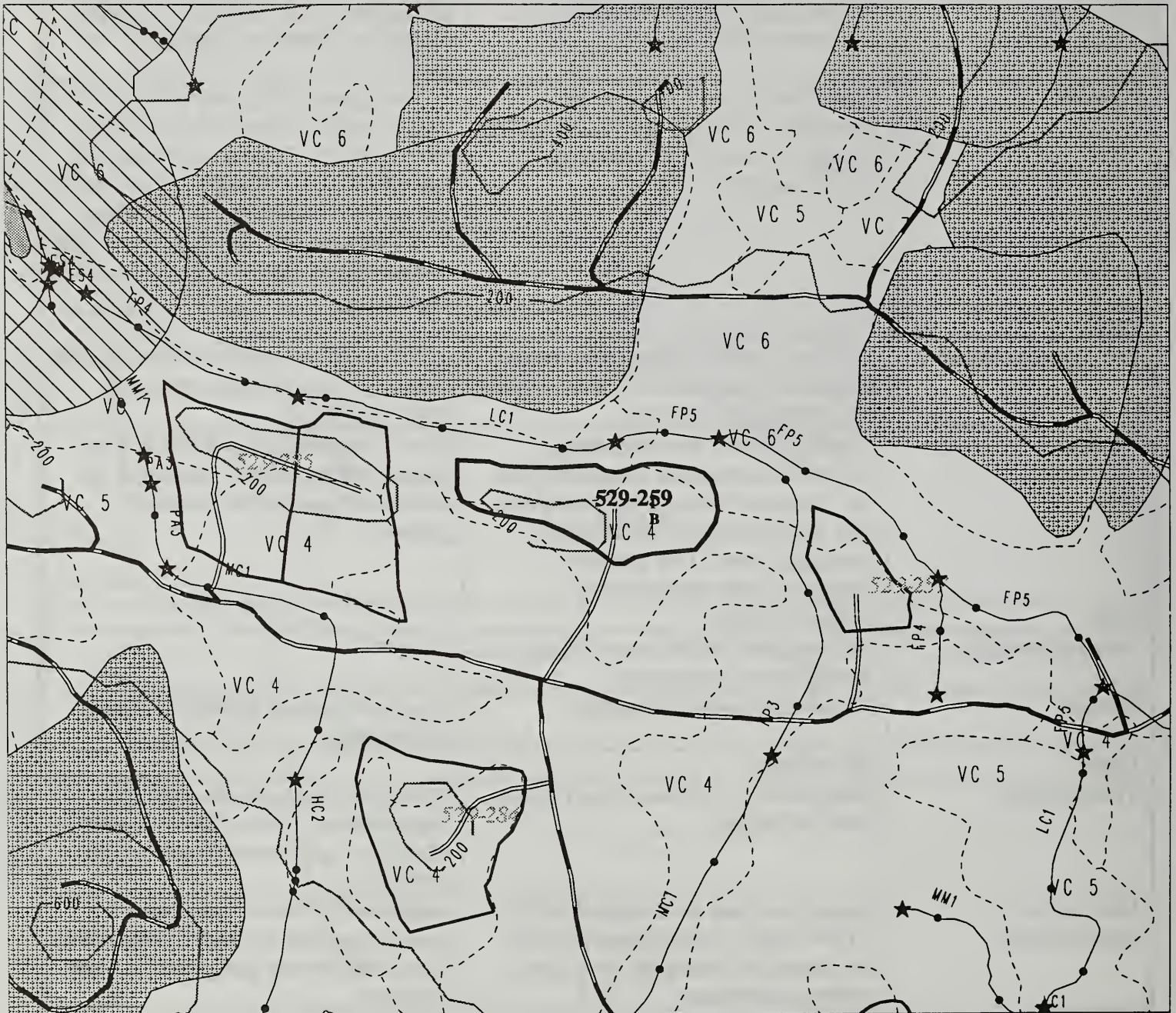
Resource Area	Concerns	Resolution
Silviculture	Saturated soils, brush competition, and salmonberry incursion.	Regeneration Harvest Type A. Monitor for planting and brush control. PCT 20 years.
Fisheries	Three Class I stream channels were identified proximal to the unit. One Class I stream crossed twice by Road 64-76-11.1 as flagged.	100' no-harvest buffer plus 100' selective harvest buffer required on stream along west boundary. 200' buffer required on Alder Creek and tributary to Alder Creek along north and east boundary. Move road west approximately 200 feet to avoid crossing Class I stream. BMP 12.6, 14.6, 14.16, 14.17
Soils	No special concern.	
Water Quality/Quantity	No streams within unit and low potential for surface erosion and sediment transport due to low gradient terrain.	100' and 200' required buffers on adjacent streams provide adequate protection. BMP 13.3, 14.10
Wildlife	Fragmentation of forested/muskeg corridor between Alder Creek and Road 20. Harvest of this unit in combination with 529-259 and 285 would parcel contiguous stand. Unit is within Trumpeter swan winter habitat.	Level 1 structure retention will be met through stream buffers. Implement 1/2 mile disturbance buffer if swans are present.
Karst	No karst features.	
Visuals/Recreation	No immediate concerns due to forest stands retained along road.	
Cultural	No cultural resources identified.	Report and cultural findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Road 64-76-11.1 crosses Class I stream twice, as flagged.	Move road west approximately 200' beyond stream to avoid Class I crossings. Close road upon completion of harvest. BMP 13.3
Unit Layout/Administration	Expand unit west to the edge of the 100' TTRA buffer. Unit designed for swing yard from one landing site with lateral yarding capabilities.	Additional 100' buffer is necessary to meet the required 200' buffer along Alder Creek and tributary along north and east boundary.
Opportunities	Trail access to Alder Creek.	

BMP's 12.6, 13.3, 14.6, 14.10, 14.16, 14.17

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 529-259

Acres: 16.6



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 529-259 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |

F-55

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 529-259

Harvest Volume : 22.9 MBF/acre

Acres : 16.6

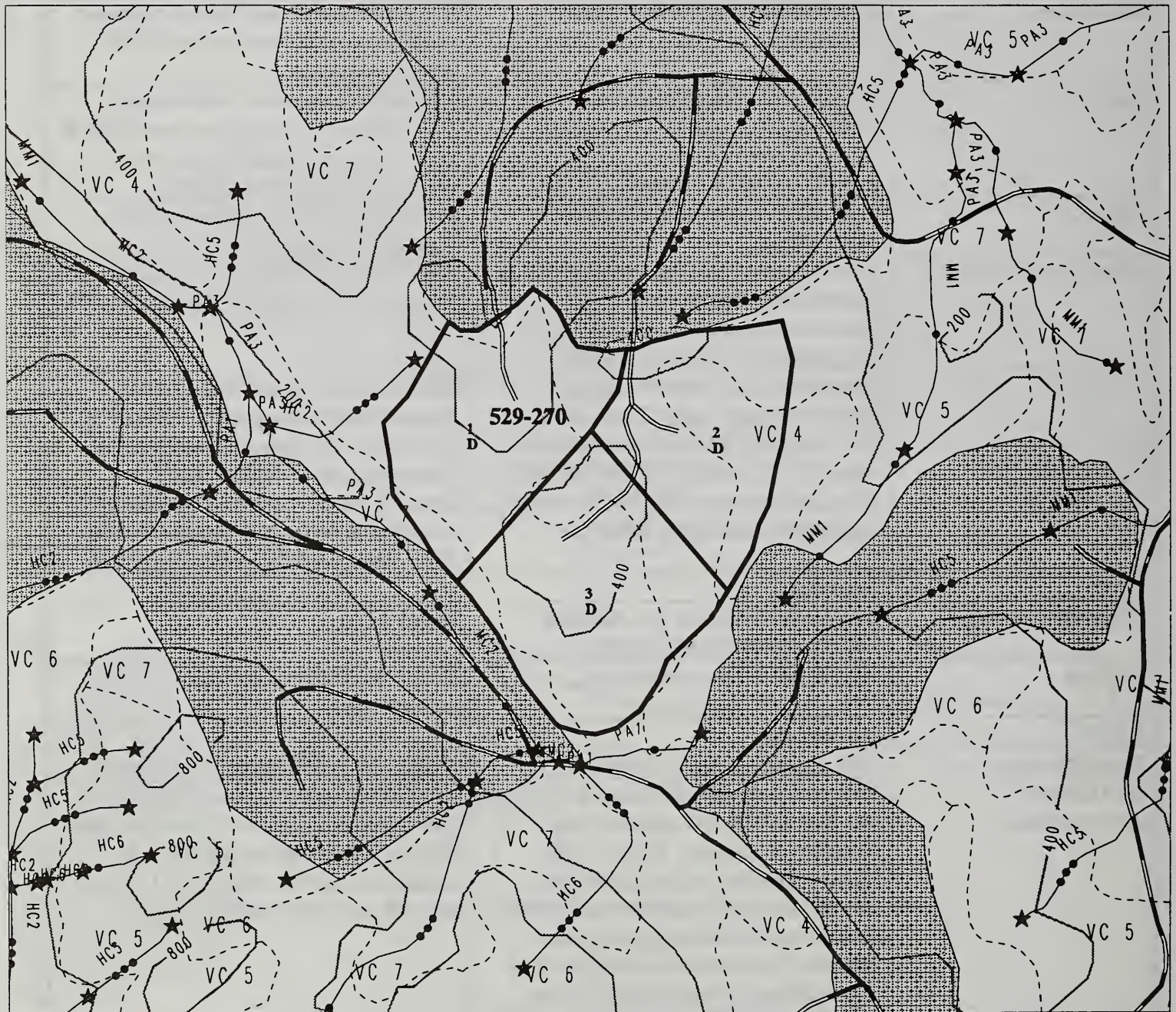
Resource Area	Concerns	Resolution
Silviculture	Brush competition. Salmonberry incursions.	Regeneration Harvest Type B. Monitor for planting and brush control. PCT within 20 years.
Fisheries	Two Class I streams identified along north and east sides of unit. Alder Creek is a major anadromous stream for all fish species (excluding sockeye) on island.	100' buffer required on both streams. 200' buffer required on the eastern half of the north unit boundary along Alder Creek to protect channel type.
Soils	High MMI soils on slopes bordering Alder Creek.	100' buffer on Class I stream protects high MMI area. BMP 13.5
Water Quality/Quantity	Risks of surface erosion and sediment to fish-bearing stream. Tributary 1 considered temperature sensitive due to low gradient and muskeg drainage.	100' minimum buffer along all stream channels in unit. BMP's 12.6, 13.3, 14.5, 14.10
Wildlife	Fragmentation of forested/muskeg corridor between Alder Creek and Road 20. Harvest of this unit, in combination with 529-257 and 529-285, would isolate effective forest corridor. Unit is within Trumpeter swan winter habitat.	Recommend deferring future harvest entry after adjacent units are adequately established. Recommend surveying for eagle nest prior to layout. Level 2 structure retention through maintenance of stream buffers. Implement 1/2 mile disturbance buffer if swans are present.
Karst	Not karsted.	
Visuals/Recreation	Very visible from Rd. 20. Adopted Maximum Modification VQO.	Meets VQO.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Spur associated with 20 Road.	Close road upon completion of harvest.
Unit Layout/ Administration	Need to verify that this unit is at least 500 feet west of 529-257 after the latter boundary is adjusted. If this unit is harvested during another future entry, boundaries could be adjusted to facilitate a more cost efficient logging system. Possible to extend unit toward Road 20 dependent upon visual considerations. Recommend deferring unit to future entry. Unit designed for high lead logging from one landing in central portion of unit.	200' buffer required on east half of north unit boundary to protect stream and meet required standards and guidelines for stream class and channel type. Unit laid out with only 100' buffer in this area.
Opportunities	Opportunity for angling access.	

BMP's 12.6, 13.3, 13.5, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 529-270

Acres: 108.8



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|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 529-270 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |

F-57

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 529-270

Harvest Volume : 29.9 MBF/acre

Acres : 108.8

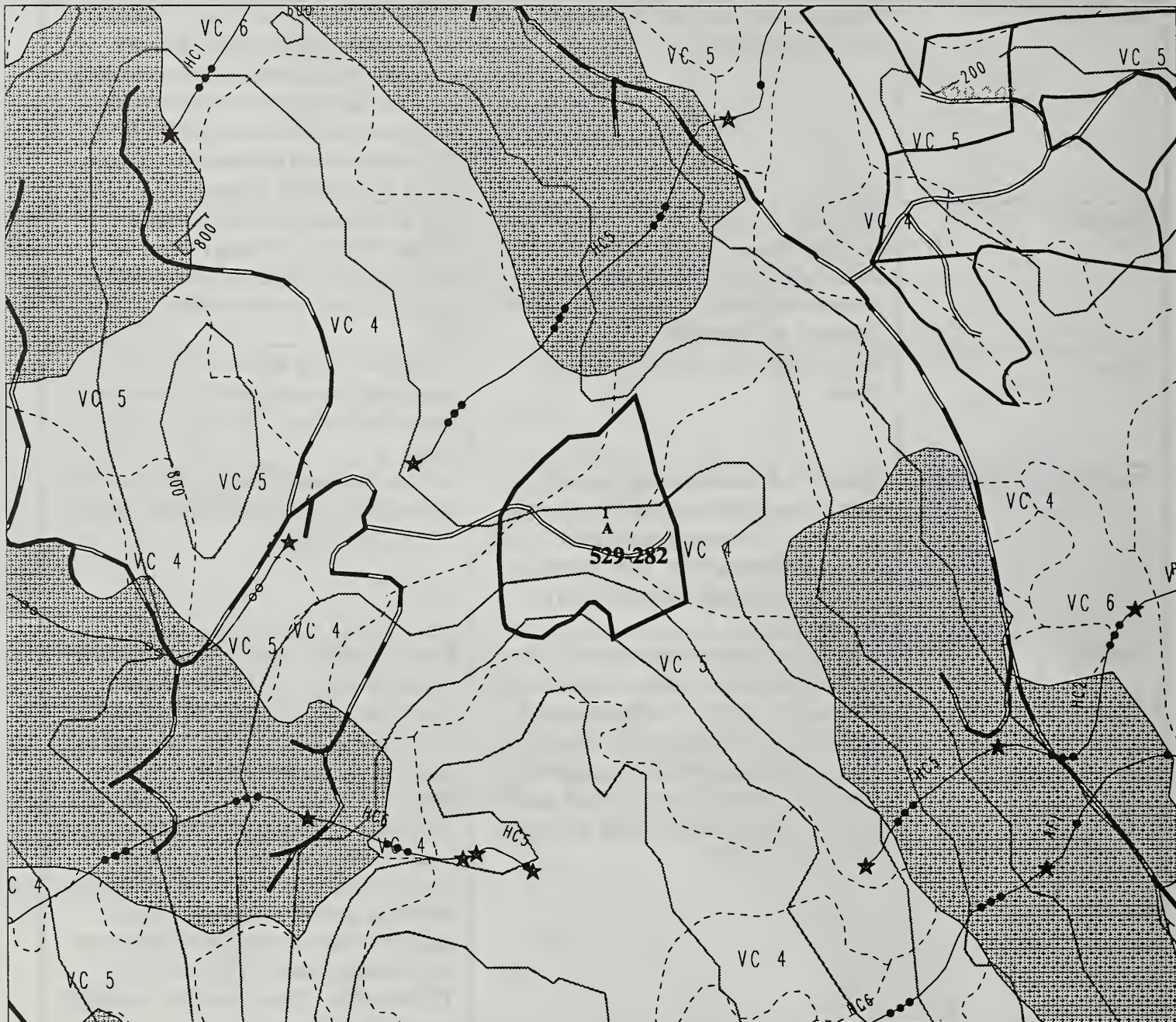
Resource Area	Concerns	Resolution
Silviculture	Mistletoe concerns. Windthrow potential. Cedar regeneration.	Regeneration Harvest Type D. Select cedar patches for retention. Harvest hemlock within stand to reduce mistletoe presence. Site specific retention areas within the unit were identified by field personnel to meet the specified Concern Level. PCT within 20 years.
Fisheries	Baker Creek along SW boundary - Class I series of beaver ponds confined by steep slopes; also wraps around south tip. Harvest within HGC buffer will exceed threshold of 25 percent.	100' no-commercial harvest stream buffer. (TTRA). Provide no harvest buffers on HGC streams within and adjacent to unit where feasible. BMP 12.7
Soils	Steep slopes, high MMI above Baker Creek.	100' buffer along stream and achieve at least partial suspension on steep slopes above Baker Creek. BMP's 13.5, 13.9, 13.12
Water Quality/Quantity	Baker Creek is temperature sensitive - trees on west side have been previously harvested. This unit is on east side - little effect on temperatures. Also, potential for erosion and sediment transport to Baker Creek.	100' no-commercial harvest buffer - will trap sediment and provide shade. BMP's: 12.6, 12.17, 14.10
Wildlife	Goose sign and potential sensitive plant habitat observed in muskeg located along southeast boundary. Fragmentation of contiguous forested corridor. Concern for snag retention requirements in 4th order basin. Meets parameters for high quality goshawk habitat. Unit within an Project-defined small HCA.	Retain windfirm trees (ITM) within 150' of east boundary, and retain forested travel corridor. 7-acre leave tree area in SE corner. Additional retention areas in center of unit and along NE boundary. Operating restrictions within a minimum of 125m of muskeg and pond area in SE if geese are determined to be present during nesting, brood rearing, molting or wintering periods. Implement Level 2 structure retention through maintenance of 3 retention areas, ITM, and 100' TTRA buffer. Survey unit for goshawks prior to final layout.
Karst	No karst concerns.	
Visuals/Recreation	No special concerns.	
Cultural	No cultural resources identified.	Contact Forest archaeologist if any findings.
Lands	No concerns.	
Transportation	No concerns - roads follow ridges.	Close road upon completion of harvest.
Unit Layout/ Administration	Unit exceeds 100 acres. Slackline yarder required to get partial suspension in required area (see maps). Run additional profiles to verify.	Designated retention areas reduce created opening to less than 100 acres.
Opportunities		

BMP's 12.6, 12.7, 12.17, 13.5, 13.12, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 529-282

Acres: 27.9



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|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 529-282 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 529-282

Harvest Volume : 24.1 MBF/acre

Acres : 27.9

Resource Area	Concerns	Resolution
Silviculture	Potential alder incursion after harvest - minimize soil disturbance.	Regeneration Harvest Type A. Partial suspension where possible. PCT in 20 years.
Fisheries	No fish habitat within or adjacent to stream.	
Soils	No special concerns.	
Water Quality/Quantity	2 Class III streams - one along west boundary, the other near middle of unit. Incised 6'-15' deep; potential for sediment production.	Put west boundary on topographic break over west creek and split yard on middle stream. BMP 12.7, 13.2, 13.12
Wildlife	Species associated with forested bluff habitat may be adversely affected by timber removal and yarding. Meets parameters for high quality goshawk habitat.	Exclude bluff area on south boundary from unit. Level 1 structure retention. Survey unit for goshawks prior to final layout.
Karst	Not karsted.	
Visuals/Recreation	Visible from Rd. 20 and Cruiseship Route in middleground. Adopted Modification VQO. This portion of Cruiseship Route Viewshed currently heavily disturbed..	Meets VQO.
Cultural	No cultural resources identified.	Notify Forest archaeologist if any findings.
Lands	No concerns.	
Transportation	No roading concerns.	Close road upon completion of harvest.
Unit Layout/ Administration	Designed for swing yarder; uphill and downhill yarding to 2 landings - split yard on Class III stream between landings, upper unit boundary located below large rock bluffs.	
Opportunities		

BMP's 12.7, 13.2, 13.12

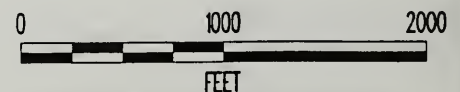
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 529-284

Acres: 20.0



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|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 529-284 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-61

March 03, 1995

UNIT PLAN & LAYOUT CARD

LAB BAY PROJECT AREA

Unit #: 529-284

Harvest Volume : 11.2 MBF/acre

Acres : 20.0

Resource Area	Concerns	Resolution
Silviculture	Saturated soils. Low site productivity. Mistletoe infection.	Harvest Type F. Select cedar for retention to reduce mistletoe infection. PCT within 20 years.
Fisheries	No fish habitat in or adjacent to unit.	
Soils	No special concerns.	
Water Quality/Quantity	No streams in or adjacent to unit.	
Wildlife	Reduction in forest structure and snag habitat. Unit is within Trumpeter swan winter habitat.	Maintain forested muskeg surrounding entire unit. Level 1 structure retention. Implement 1/2 mile disturbance buffer if swans are present.
Karst	No Karst.	
Visuals/Recreation	Very visible from Rd. 20. Adopted Maximum Modification VQO.	Meets VQO.
Cultural	No cultural resources identified.	Notify Forest archaeologist if any findings.
Lands	No concerns.	
Transportation	Unit surrounded by muskeg.	Road located to minimize crossing of muskeg. Close road upon completion of harvest BMP 14.10
Unit Layout/ Administration	Unit boundary located to include all volume class ≥ 4 timber. High lead or shovel logging.	
Opportunities	Future potential for specialty wood sales.	

BMP 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 529-285

Acres: 34.1



- | | | | |
|--|---------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 529-285 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |

★ Potential Channel Type Change

F-63



March 03, 1995

UNIT PLAN & LAYOUT CARD

LAB BAY PROJECT AREA

Unit #: 529-285

Harvest Volume : 25.3 MBF/acre

Acres : 34.1

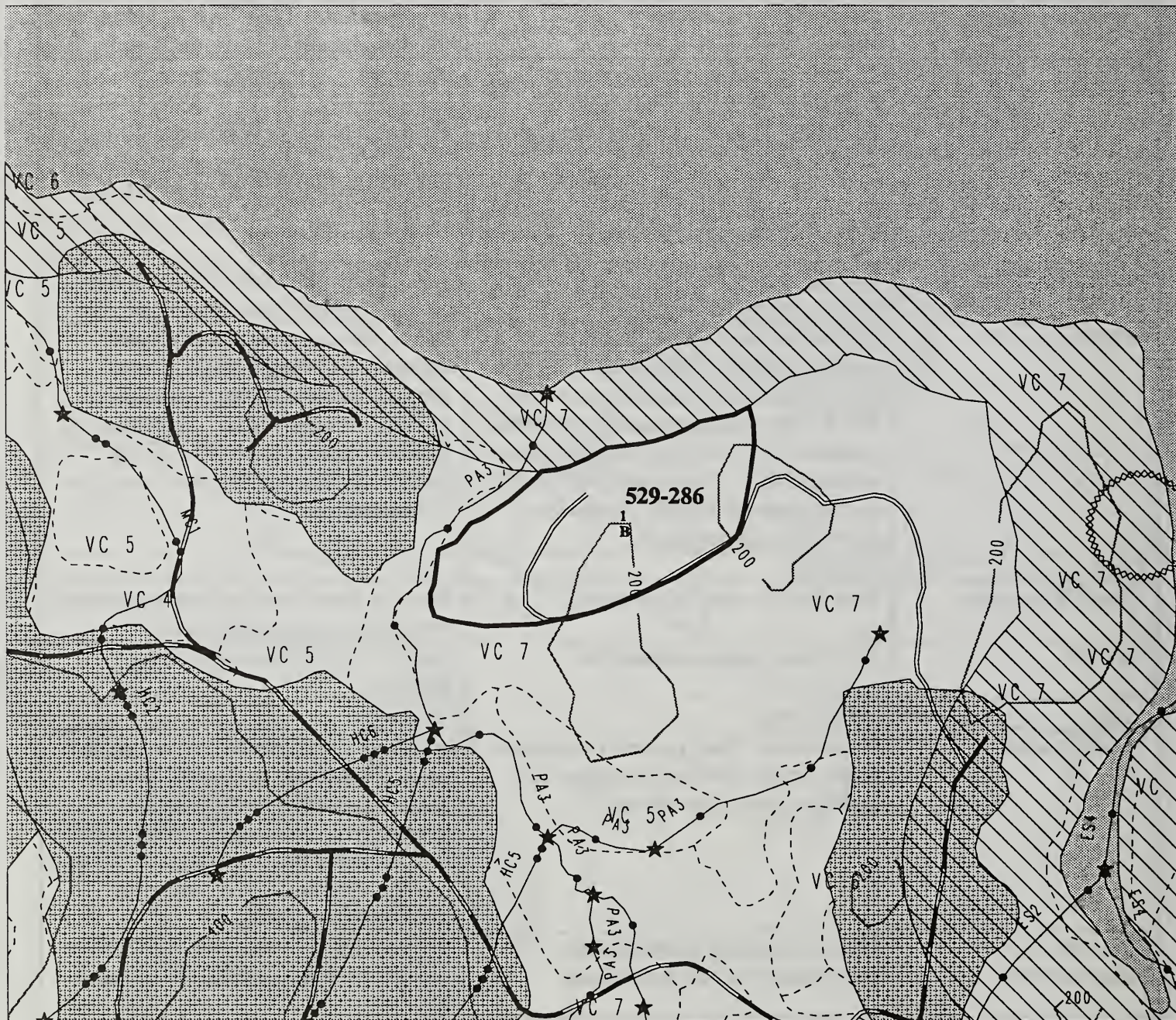
Resource Area	Concerns	Resolution
Silviculture	Salmonberry incursions.	Regeneration Harvest Type A. Minimize soil disturbance. PCT within 20 years
Fisheries	Alder Creek along north boundary; Class I tributary along west and southwest boundary. Class I stream crossing (see Transportation) by Road 64-76-10.1.	Minimum 100' buffer on stream at west and southwest boundary. Alder Creek requires 200' no-harvest buffer (100' TTRA, 100' no-programmed harvest. BMP's 12.6, 12.7, 14.6, 14.10, 14.16, 14.17.
Soils	No special concerns.	
Water Quality/Quantity	Potential for increased sediment and temperature of Class I streams.	≥ 100' buffer on Class I streams. 200' buffer on Alder Creek. BMP 13.3, 12.7
Wildlife	Fragmentation of forested/muskeg corridor between Alder Creek and Road 20. Harvest of this unit plus units 529-257 & -259 would isolate effective forest corridor. Unit is within Trumpeter swan winter habitat. Meets parameters for high quality goshawk habitat. Proximity to salt water, salmon stream.	Survey for eagle nest prior to layout. Maintain 100' stream buffer. Level 2 structure retention through maintenance of Class I stream buffers. Implement 1/2 mile disturbance buffer if swans are present. Survey unit for goshawks prior to final layout.
Karst	Not karst.	
Visuals/Recreation	Near Rd. 20 - main travel route.	Standing timber retained between unit and Road 20 (part of stream buffer)
Cultural	No cultural resources identified.	Notify Forest archaeologist if any findings.
Lands	No concerns.	
Transportation	Road crosses Class I stream (tributary to Alder Creek). Confirmed resident trout; possible pink & coho salmon.	Install ≥ 48" pipe arch or culvert at grade, remove after harvest complete cross at right angle, minimize road length in riparian area. Investigate road relocation to enter unit at SE corner and avoid Class I stream crossing. Close road upon completion of harvest.
Unit Layout/Administration	High-lead logging to two landings. Additional buffer on Alder Creek.	Provide 200' buffer along Alder Creek to meet Forest Plan guidelines for channel type.
Opportunities		

BMP's 12.6, 12.7, 13.3, 14.6, 14.10, 14.16, 14.17

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 529-286

Acres: 38.3



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 529-286 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 529-286

Harvest Volume : 41.7 MBF/acre

Acres : 38.3

Resource Area	Concerns	Resolution
Silviculture	High mistletoe infection. Original large unit intended for partial cut not recommended. High windthrow risk - winds from south.	Implement Regeneration Harvest Type B due to mistletoe & windthrow potential. Divide larger partial cut into three clearcut units - harvest west unit this entry. Partial retention within 100' extension of TTRA buffer on west. Along 100'-150'-wide buffer on S and N boundaries, retain intermediate and understory while harvesting dominants and co-dominants. Maintain standing forest to N as windbreak. PCT within 20 years. Defer central and east units this entry.
Fisheries	Class I stream along west boundary and numerous beaver ponds. An estuary at mouth of Flicker Creek requires 1,000' no-harvest buffer.	100' no-harvest TTRA buffer extends from edge of grass on right stream bank; add a partial retention buffer along 100' strip within unit along west boundary. BMP 12.6, 12.7
Soils	No special concerns.	
Water Quality/Quantity	No special concerns.	
Wildlife	Estuarine habitat along east boundary and beaver pond wetlands on west. Fragmentation of heavily harvested drainage area. Reduction of deer winter range, forest structure, snag habitat, and marbled murrelet habitat. 1000' estuary buffer to E; 500' beach fringe buffer to north. Previously identified eagle nest east of unit, along shoreline. Proposed road construction within 1/2 mile of eagle nest. Unit is within Trumpeter swan winter habitat. Located within an Project-defined small HCA.	Maintain a partial retention of windfirm vegetation along west boundary. Maintain 1000' estuary buffer. Confirm presence of eagle nests and establish 330' nest buffer for unit. Implement 1/2 mile seasonal blasting restrictions. Implement 1/2 mile disturbance buffer if swans are present. Stream buffers, partial retention along west boundary, beach fringe and estuary buffer, and retention area in center of unit will maintain Level 2 structure.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to presence of numerous well-developed karst features (sinkholes, solution channels, grikes), and Class I stream. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers. Avoid construction over significant karst features (caves, vertical shafts, sinkholes, or insurgences).
Visuals/Recreation	Unit near Sumner Strait beach front. East of Memorial Beach picnic area.	500' no-harvest buffer from beach - north boundary.
Cultural	No cultural resources identified (area was surveyed).	Notify Forest archaeologist if any findings.
Lands	No concerns.	
Transportation	No concerns - easy roading.	Close road upon completion of harvest. BMP 14.10

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 529-286

Acres: 38.3



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 529-286 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 529-286 (Continued)

Unit Layout/ Administration	Designed for swing yarder. Laid out as large unit for partial cutting but recommended alteration of boundaries to make smaller clearcut unit - see sketch map. Estuary along east boundary.	Defer east unit at this time due to 1000' estuary buffer, eagle nest tree, high windthrow hazard, and to retain forested corridor for wildlife.
Opportunities		

BMP's 12.6, 12.7, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 530-200

Acres: 17.4



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 530-200 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 530-200

Harvest Volume : 11.8 MBF/acre

Acres : 17.4

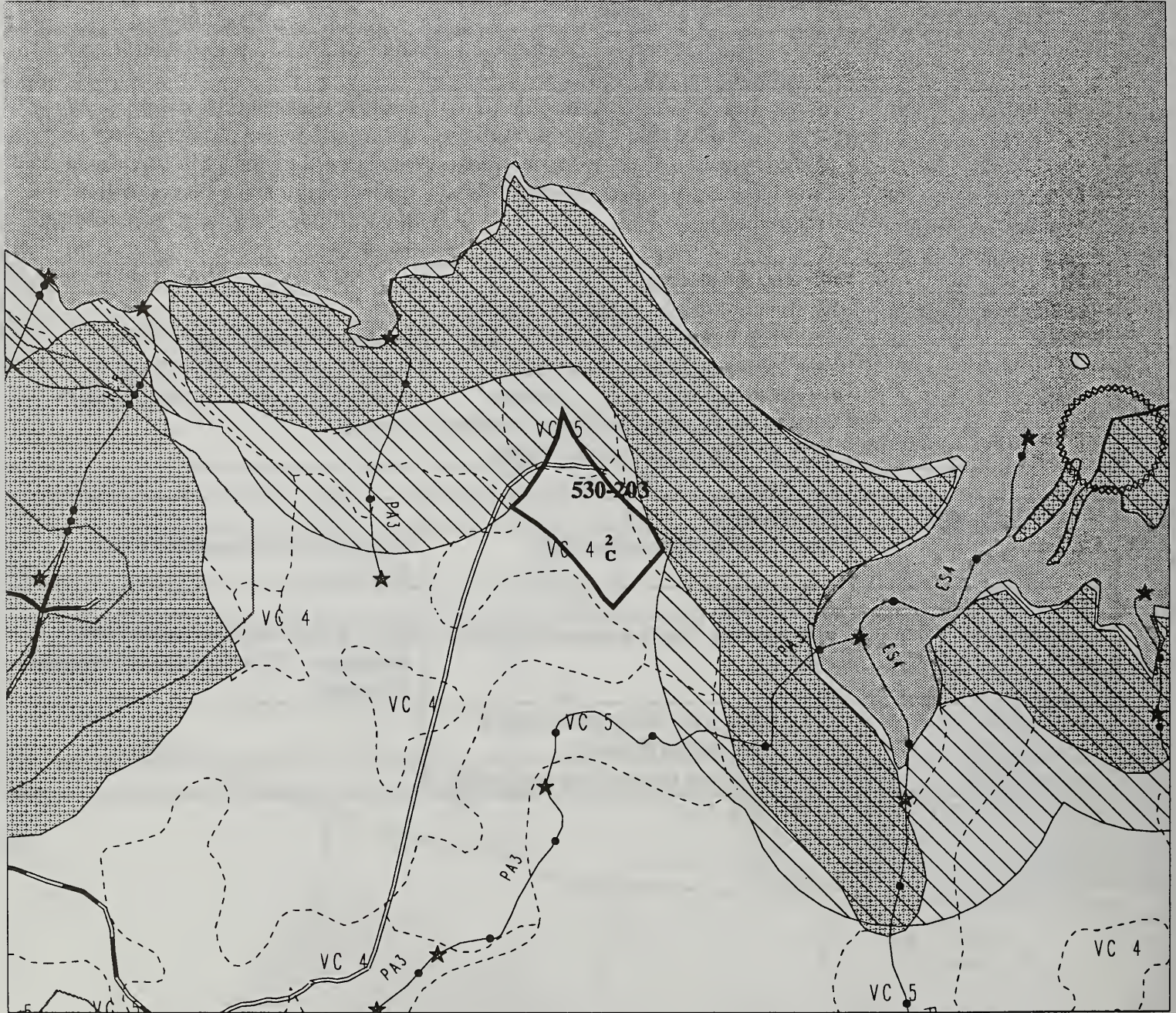
Resource Area	Concerns	Resolution
Silviculture	Low site productivity soil. Mistletoe infection. Brush competition.	Harvest Type F. PCT within 20 years.
Fisheries	Access Road 64-77-17 crosses Class I stream - good location - stable stream with no bedrock. Unit is >150 feet from Class I stream to south (no timber). (See Transportation.)	Cross at right angle to stream; apply timing restrictions. Maintain 100' no-commercial buffer and 100' selective harvest buffer along Class I stream. BMP's 12.7, 12.11, 14.6, 14.10, 14.16, 14.17.
Soils	No special concerns.	
Water Quality/Quantity	No streams in unit - no special concerns.	
Wildlife	Reduction in forested winter range and snag habitat in an area that contains typically low habitat value. Located within a Draft Interim-designated medium HCA (USDA Forest Service, 1994b).	Implement Level 1 snag retention recommendations. Close Road 64-77-17 at Rd. 20 junction after completion of harvest.
Karst	Not karst.	
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Notify Forest archaeologist if any findings.
Lands	No concerns.	
Transportation	Road crosses Class I stream south of unit.	Cross at right angle to stream; timing restrictions. Close road upon completion of harvest.
Unit Layout/Administration	Unit designed for swing yarder, small unit; short yarding distances.	
Opportunities	Future potential for specialty wood sales.	

BMP's 12.7, 12.11, 14.6, 14.10, 14.16, 14.17

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 530-203

Acres: 11.2



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 530-203 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-71

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 530-203

Harvest Volume : 14.9 MBF/acre

Acres : 11.2

Resource Area	Concerns	Resolution
Silviculture	Windthrow risk. Salmonberry incursions.	Regeneration Harvest Type C. PCT at 20 years following harvest.
Fisheries	Class I stream proximal to west and southeast boundary. Stream on southeast boundary vulnerable to fine sediment deposition.	Reduce unit size to avoid estuary and stream buffered areas. BMP 12.6
Soils	No special concerns.	
Water Quality/Quantity	Temperature sensitive Class I stream on west boundary.	Reduce unit size to avoid estuary and stream buffered areas. BMP 12.6 and 13.2
Wildlife	Series of beaver dams proximal to unit boundary on west. Estuary north, west, and east of unit. Located within a Draft Interim-designated medium HCA (USDA Forest Service, 1994b).	Maintain 1000' estuary buffer north, west and east of unit. Estuary buffers will maintain Level 1 structure recommendations.
Karst	No karst.	
Visuals/Recreation	Unit adjacent to Sumner Strait.	Estuary buffer and terrain provide adequate visual buffer.
Cultural	No cultural resources identified.	Report any cultural findings to Forest archeologist.
Lands	No concerns.	
Transportation	Road skirts muskegs. Road to northern landing is located in estuary buffer.	Adequate rock bed. Drop north road as the setting is accessed entirely within the estuary buffer. Close road upon completion of harvest. Economics of this unit are marginal. Helicopter logging with landing on existing road to west should be evaluated.
Unit Layout/ Administration	Unit designed for swing yarder. Marginal timber outside of west boundary inaccessible without additional 400 feet of temp road. Maintain estuary buffer on north, west, and east boundary of unit.	Unit laid out with 500' shoreline buffer to north and west. Re-flag north and west boundary at 1000' from estuary buffer, and drop north setting and northern road.
Opportunities	Recreational trail opportunity and campground site in estuary near Buster Creek.	

BMP's 12.6, 13.2

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 530-226

Acres: 60.2



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 530-226 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 530-226

Harvest Volume : 26.9 MBF/acre

Acres : 60.2

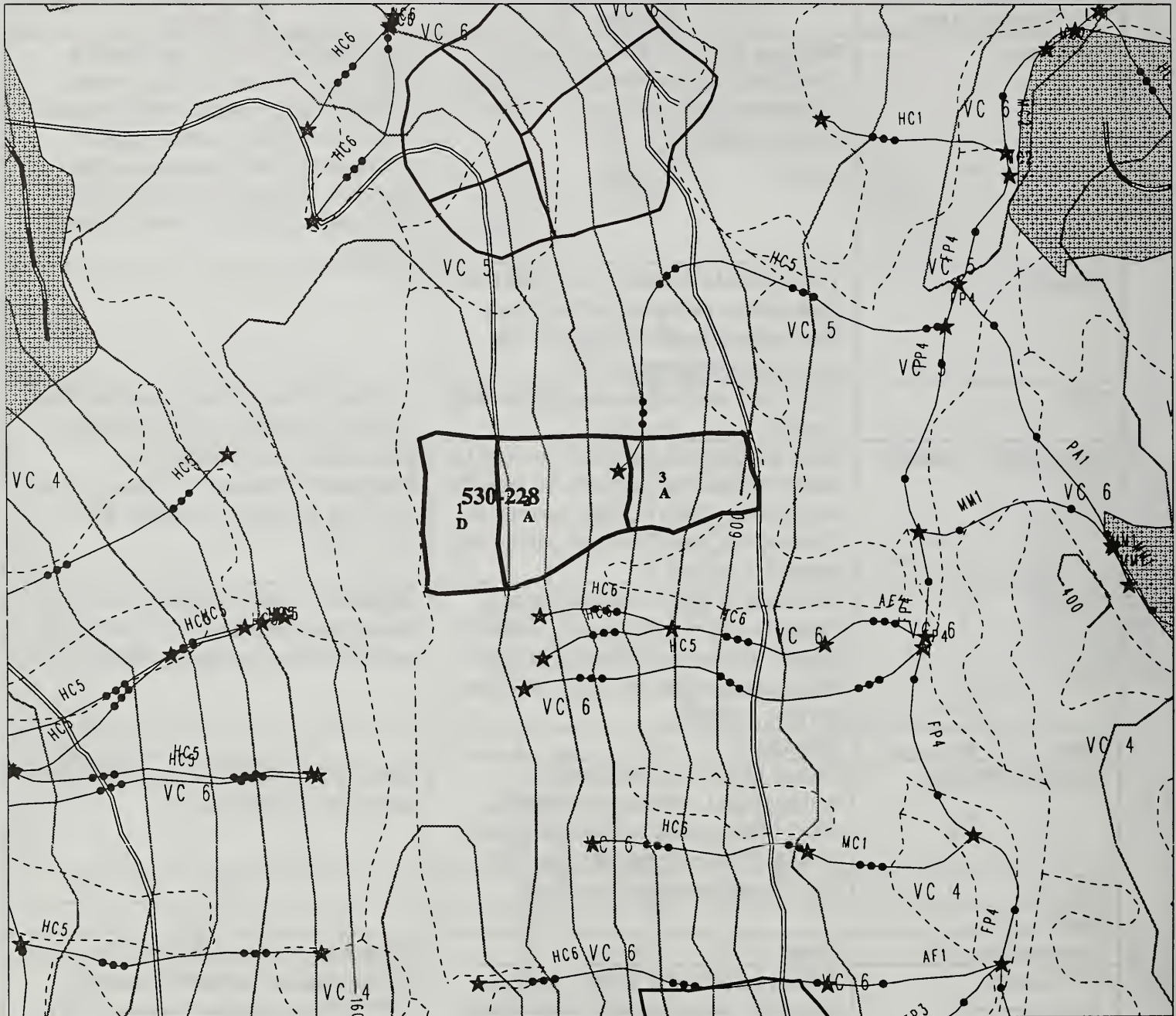
Resource Area	Concerns	Resolution
Silviculture	Moderate level of mistletoe present throughout mid and lower portion of unit, in overstory and understory. Low site index in upper unit.	Regeneration Harvest Type D with a 250'-wide ITM strip through western portion of unit. Maintain mistletoe-free trees within ITM. Cut/thin hemlock regeneration during harvest to reduce mistletoe infection. Plant yellowcedar. PCT hemlock at 15-20 years following harvest.
Fisheries	Three Class III streams flow across low grade terrace below unit to east - these form adequate sediment buffers. (See water quality/quantity.)	
Soils	High MMI, steep slopes in upper portion of unit.	Achieve at least partial suspension where slopes exceed 60%. BMP 13.9, 13.5
Water Quality/Quantity	Class III stream along north boundary is deeply incised, high potential for sediment routing into Class I portion downstream. Three other Class III streams within unit - stable, not incised.	Locate north unit boundary on topographic break above channel. Do not yard logs up or down channel. BMP 13.9, 12.7
Wildlife	Reduction in snag levels and bisects a forested corridor. High-quality wildlife habitat. Located within a Draft Interim-designated medium HCA (USDA Forest Service, 1994b).	Minimum Level 1 structure retention through maintenance of 250'-wide ITM corridor through western portion of unit.
Karst	No karst.	
Visuals/Recreation	Visible from Cruiseship Route in middleground. Adopted Modification VQO. This portion of Cruiseship Route viewshed presently heavily disturbed.	Meets VQO. ITM in west portion of unit leaves residual structure.
Cultural	No Cultural Resources identified.	
Lands		
Transportation	None.	Close road upon completion of harvest.
Unit Layout/ Administration	3 drum yarder - 100' tower - shotgun, slackline. Partial suspension should be available. More profiles will be required to verify this. 250' ITM area at uphill/downhill interface.	During final layout identify and mark 250' ITM area at break between uphill and downhill yarding.
Opportunities		

BMP's 12.7, 13.5, 13.9

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 530-228

Acres: 35.6



- Project Boundary
- Unit 530-228
- Other Units
- Timber Type Boundary
- Eagle Nest Buffer (330ft)
- Existing Roads
- Proposed Roads
- Class I Stream
- Class IIa Stream
- Class IIb Stream
- Class III Stream

- Water
- Beach Fringe/Estuary
- Second Growth
- 200 ft contours



NORTH



★ Potential Channel Type Change

F-75

March 03, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 530-228

Harvest Volume : 32.2 MBF/acre

Acres : 35.6

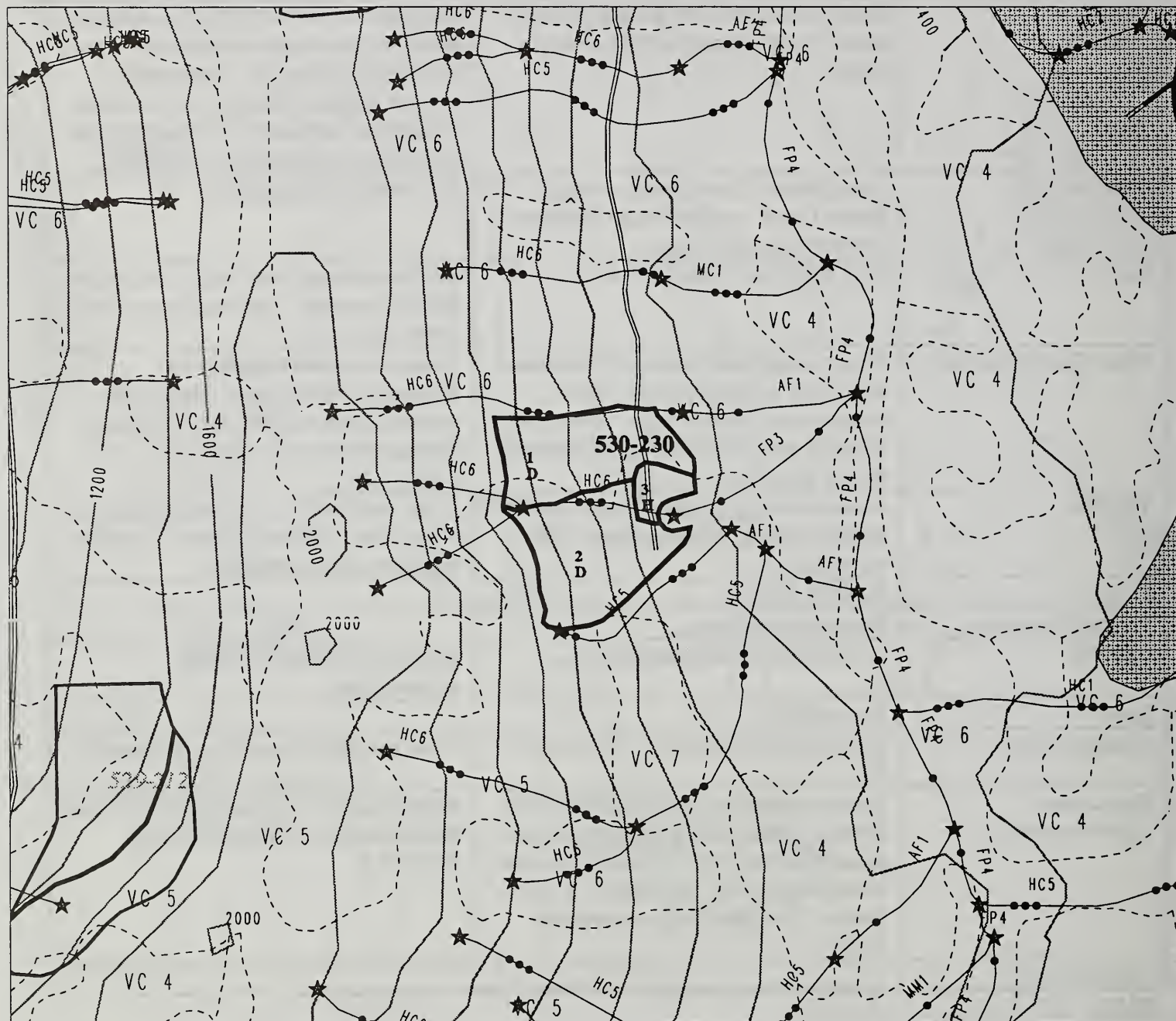
Resource Area	Concerns	Resolution
Silviculture	Steep slopes, red alder present on lower slopes. Low site productivity on upper slopes.	Regeneration Harvest Type D stripcut in setting #1 to mitigate site productivity and regeneration concerns. Regeneration Harvest Type A in settings 2 & 3. Partial suspension recommended. Eradicate red alder after reproduction is established.
Fisheries	Low potential for sediment routing to Buster Creek - ample low gradient area between unit and stream.	See water quality/quantity.
Soils	High MMI soils, bluffs in unit.	Achieve at least partial suspension where downhill yarding. Split yarding on bluffs. BMP 13.5, 13.9
Water Quality/Quantity	Stream along south boundary has sluiced to bedrock in upper portion, much deposition in lower portion. Two other Class III streams in unit - have potential to also sluice out.	Locate south unit boundary on topographic break above creek. Split yard on streams within unit to minimize channel disturbance. BMP 12.7, 13.2, 13.5, 14.10
Wildlife	Reduction in snag habitat. High quality wildlife habitat, including lateral deer migration use.	Defer entry below east road for harvest at a later date. Implement Level 1 structure retention recommendation.
Karst	No karst features.	
Visuals/Recreation	No special concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	See files/road cards 64-77-29 and 64-77-30	Close road upon completion of harvest.
Unit Layout/ Administration	Partial suspension for downhill slackline. Shotgun uphill yarding requires tail trees at east unit boundary. Partial suspension wherever possible. 100' tower - 3 drum yarder. High MMI soils at southeast corner.	Adjust southeast unit boundary to exclude stands of alder and high MMI soils. BMP 13.5
Opportunities		

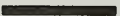
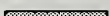
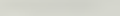











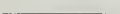

BMP's 12.7, 13.2, 13.5, 13.9, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 530-230

Acres: 28.1



- | | | | |
|---|-------------------------------|---|----------------------|
|  | Project Boundary |  | Water |
|  | Unit 530-230 |  | Beach Fringe/Estuary |
|  | Other Units |  | Second Growth |
|  | Timber Type Boundary |  | 200 ft contours |
|  | Eagle Nest Buffer (330ft) | | |
|  | Existing Roads | | |
|  | Proposed Roads | | |
|  | Class I Stream | | |
|  | Class IIa Stream | | |
|  | Class IIb Stream | | |
|  | Class III Stream | | |
|  | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 530-230

Harvest Volume : 23.9 MBF/acre

Acres : 28.1

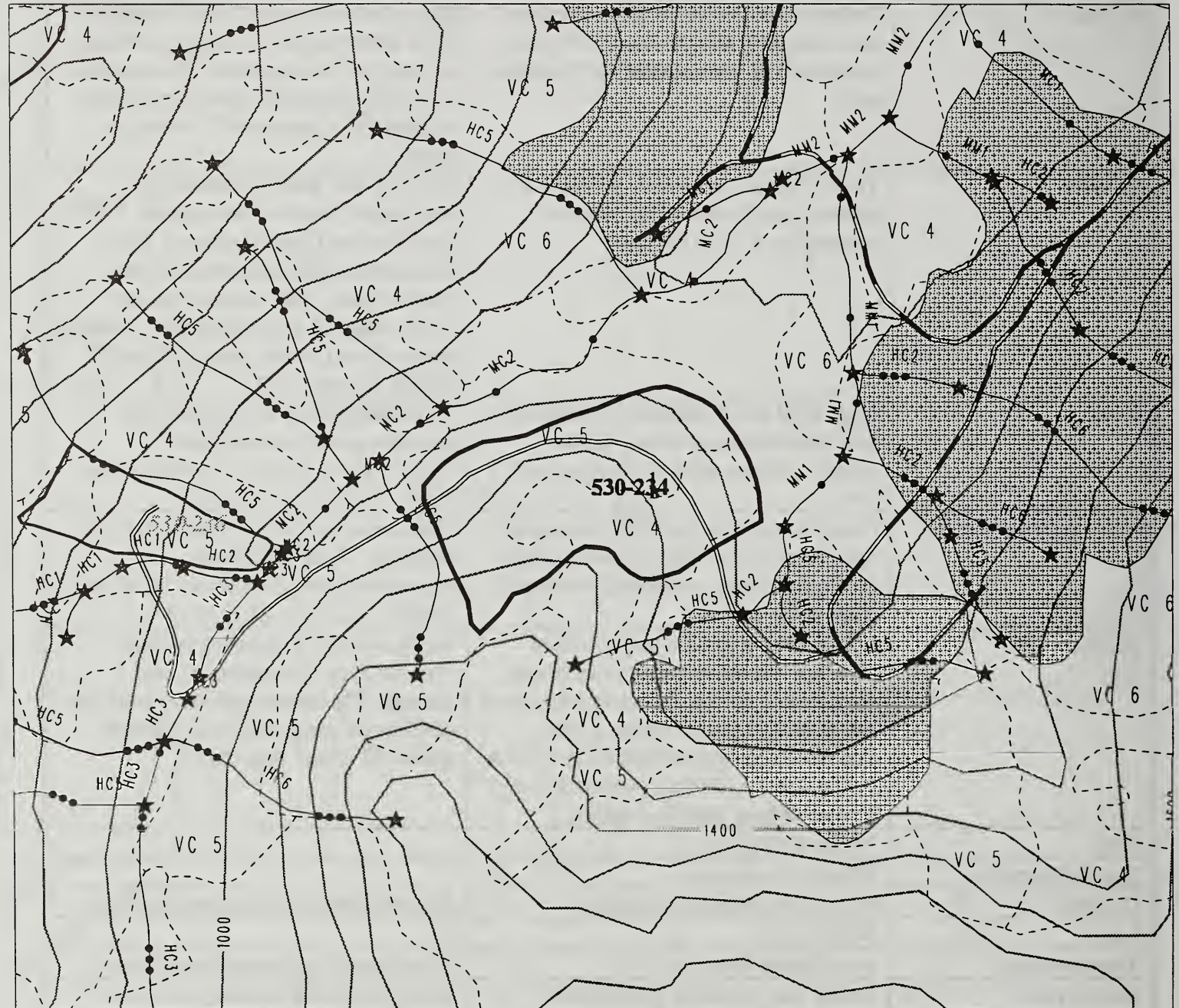
Resource Area	Concerns	Resolution
Silviculture	Probability of red alder taking over site, especially at lower elevation. Probable overstocking. Slope instability. Saturated soils.	Regeneration Harvest Type D (settings 1 & 2). Harvest Type H (setting 3). Partial suspension recommended. Plan on alder eradication or control after reproduction established. Consider PCT within 20 years.
Fisheries	Three Class III streams (1 within and 2 adjacent) with potential for sediment transport to a Class I stream.	Put north and south boundaries on topographic break above streams. Split yard on other Class III streams; leave nonmerchantable trees within 50' of Buster Creek. 100' selective harvest buffer required at southeast unit boundary where Class I stream turns to Class III. BMP's 12.6 and 12.7.
Soils	High MMI soils; downhill yarding has potential to concentrate any surface runoff. Shallow soils, bluffs along top line.	Partial suspension to minimize soil disturbance and prevent runoff concentration. Put unit boundary below bluffs. BMP's 13.9 and 13.5
Water Quality/Quantity	Class III stream along South boundary with recent debris slide. Class III stream in middle of unit - potential for sediment transport to Class I.	Locate unit to north of stream at south boundary. Split yard, leave nonmerchantable trees within 50' of creek. BMP's 13.2, 13.3, 12.7, 14.10
Wildlife	Lateral deer migration and structural diversity - forest wetland to east of unit. High quality habitat for cavity excavators and marten. Located within a Draft Interim-designated medium HCA (USDA Forest Service, 1994b). Also within a Project-defined wildlife corridor.	Maintain Level 1 structure through Harvest Type H in setting #3, and through ITM harvest within 50' each side of Class III stream bisecting unit and within 70' of east boundary.
Karst	No karst resources.	
Visuals/Recreation	No special concerns.	
Cultural	No cultural resources identified.	Report findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Accessed by Road 64-77-29.	Close road upon completion of harvest.
Unit Layout/ Administration	Swing yard - possible grapple - 54' "tower" (north and south settings) - partial suspension on high MMI soils. Shovel log or swing yard the middle setting.	Adjust north unit boundary (south) to avoid the northernmost Class III stream and adjacent high MMI soils. New boundary should begin at STA 85+00, extend west up Class III stream to established west bndry and rock bluffs.
Opportunities		

BMP's 12.6, 12.7, 13.2, 13.3, 13.5, 13.9, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 530-234

Acres: 45.2



- | | | | |
|--|---------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 530-234 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |

★ Potential Channel Type Change

F-79

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 530-234

Harvest Volume : 23.2 MBF/acre

Acres : 45.2

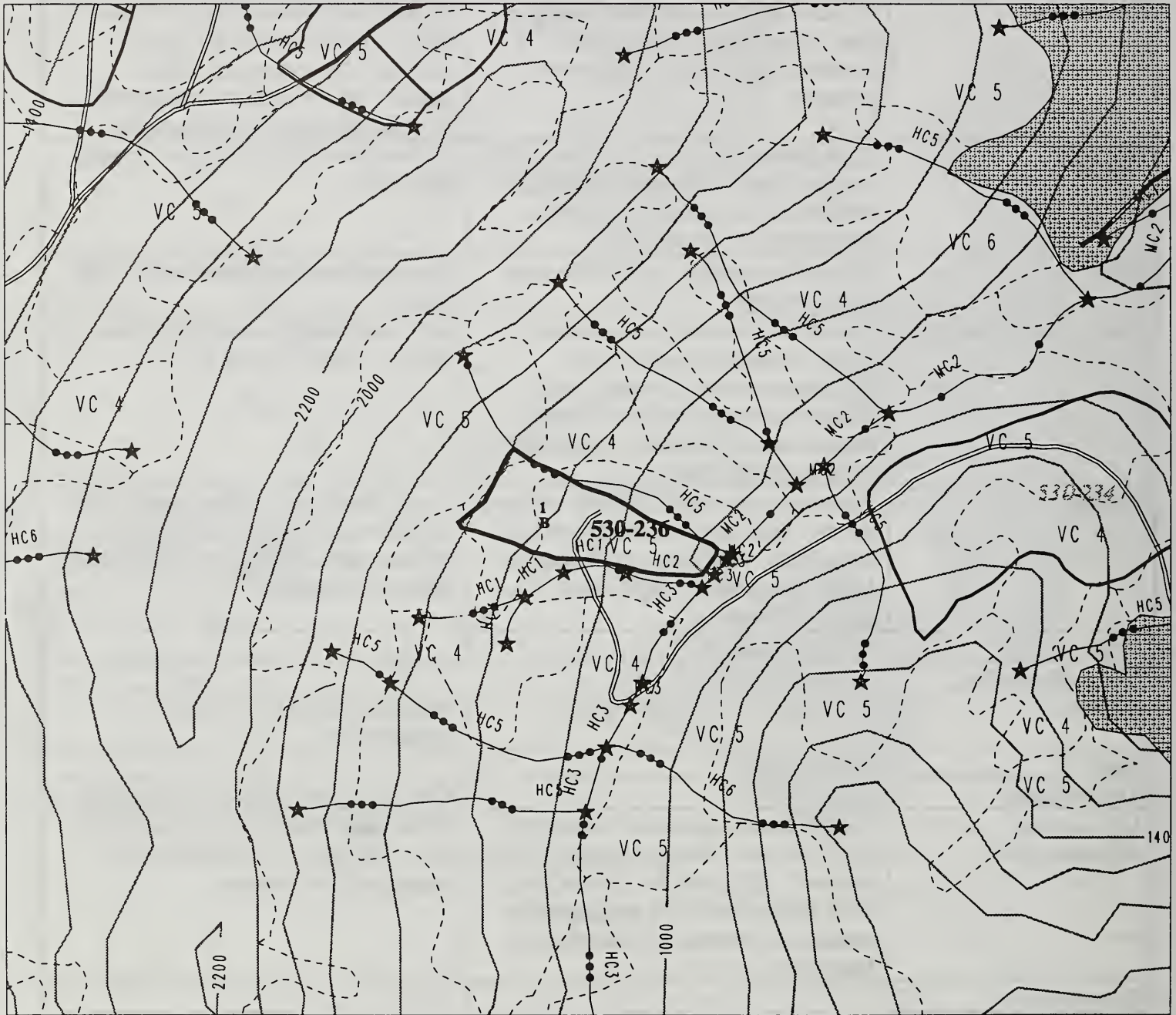
Resource Area	Concerns	Resolution
Silviculture	1-2 acres of reproduction in blowdown area. Possible alder reproduction. Probable overstocking. Salmonberry incursion.	Regeneration Harvest Type B with 100' ITM along unit boundary. Locate landings to avoid reproduction, if possible. PCT and alder control within 20 years. Minimize soil disturbance.
Fisheries	Class I stream along west portion of north boundary straight channel; well confined with no side channels. Class I stream along southeast corner.	100' required buffer along both streams. BMP 12.6
Soils	No special concerns - rock bluffs at top w/shallow soils	Keep unit boundary below bluffs. BMP 13.2
Water Quality/Quantity	Class III stream along west boundary is stable - no special concerns, not temperature sensitive. Class I stream along west portion of north boundary - straight channel, confined. Class I stream along southeast corner.	100' required buffer along both Class I streams. BMP 12.6, 14.10
Wildlife	Reduction in structural diversity and snag density. Past harvest located north and east of unit. Muskeg on east boundary. Meets parameters for high quality goshawk habitat.	Level 2 structure retention through 100' Class I stream buffers and ITM along unit boundary. Survey unit for goshawks prior to final layout.
Karst	No karst resources	
Visuals/Recreation	No special concerns	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Road 65-77-12.1	Close road upon completion of harvest.
Unit Layout/ Administration	Lack of partial suspension in southwest portion of unit. Slackline logging will be required. 100' buffer for Buster Creek. More profiles from each landing will be required to eliminate all possibilities of blind leads.	Check easternmost tip of unit and verify that a 100' buffer is maintained from ending of Class I stream.
Opportunities		

BMP's 12.6, 13.2, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 530-236

Acres: 14.0



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 530-236 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |

F-81

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 530-236

Harvest Volume : 22.3 MBF/acre

Acres : 14.0

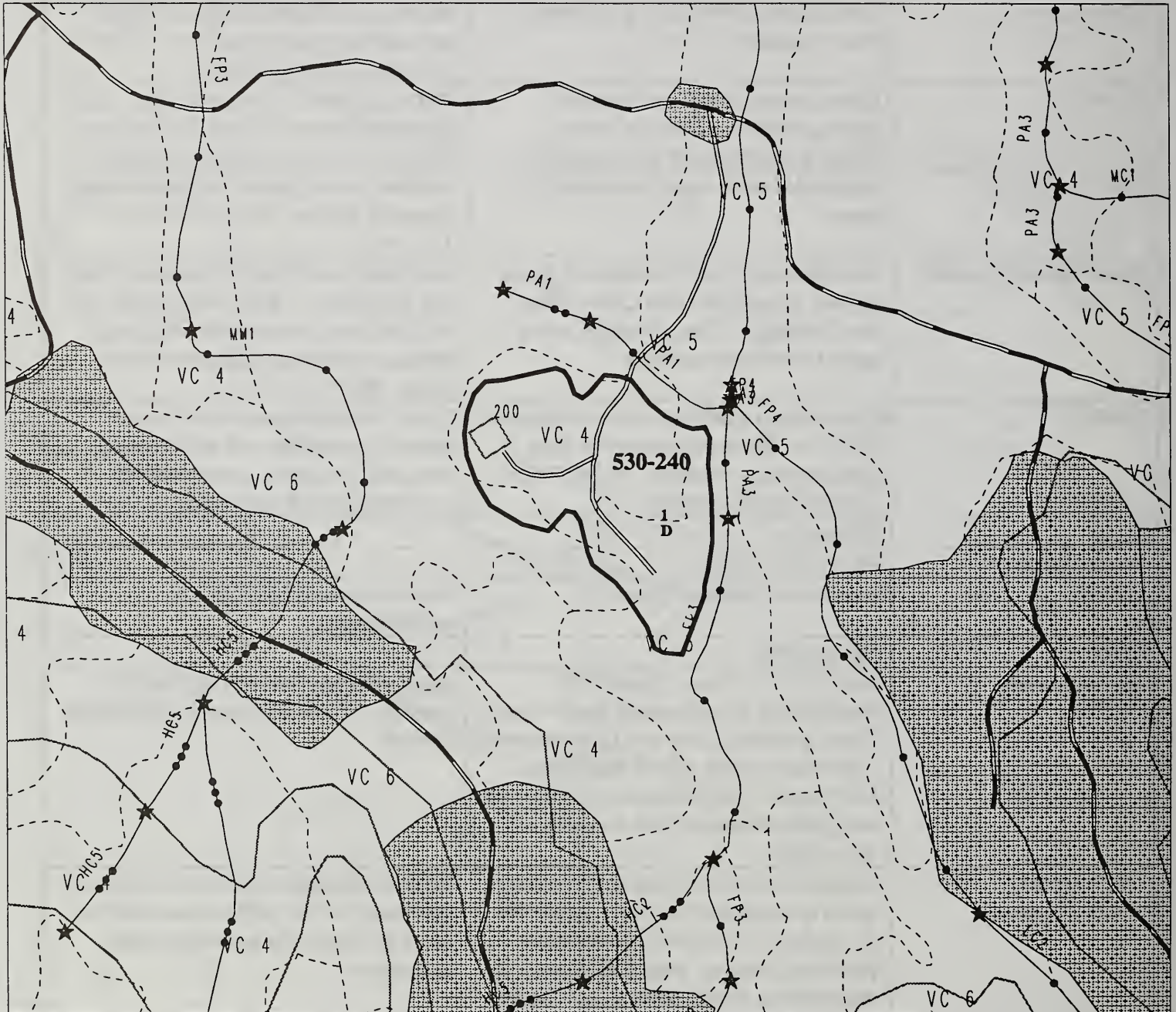
Resource Area	Concerns	Resolution
Silviculture	Steep slopes. Overstocking probable. Slope instability.	Regeneration Harvest Type B. Partial suspension recommended. PCT within 20 years should be considered.
Fisheries	Class I stream along east boundary - stable, confined. Class IIa stream crossing required (see Transportation).	100' required buffer along stream. Apply timing restriction to Class IIa crossing. BMP 12.6, 14.6, 14.10, 14.16, 14.17
Soils	High MMI soils, upper portion is 90% slope.	Achieve at least partial suspension when downhill yarding. BMP's 13.5, 13.9, 14.2, 14.7
Water Quality/Quantity	Several small Class III streams in lower portion of unit; feed into Class I along east boundary. Class III stream along north boundary is unstable.	Split yard on all Class III streams within unit if practical - or fell trees across - do not yard trees up channels. Put north boundary on topographic break above creek. BMP 12.7, 13.2
Wildlife	Reduction in structural diversity and snag densities. Meets parameters for high quality goshawk habitat. Within Project-defined wildlife corridor.	Level 1 structure retention through harvest prescription and relocation of west unit boundary. Survey unit for goshawks prior to final layout.
Karst	No karst.	
Visuals/Recreation	No special concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	See 65-77-12.1 file. Check 89-94 Road/Bridge location along Buster Creek. Could possibly access unit from the north - not field verified. (89-94 road not on USFS data) Class IIa stream crossing on west fork of Buster Creek requiring 40-50' bridge.	Apply timing restriction to Class IIa crossing. Close road upon completion of harvest.
Unit Layout/ Administration	2 profiles indicated upper unit boundary needs to be shifted down below the 1400 ft. contour to be capable of obtaining partial suspension. Partial suspension is required due to high MMI soils. Yarding between Buster Cr. 100' buffer and Road 66-77-12.1 will require swing yarding and split yarding to avoid stream disturbances. Use swing yarding throughout unit.	Relocate the upper (west) unit boundary downward to the 1400' contour level in order to achieve the required partial suspension.
Opportunities		

BMP's 12.6, 12.7, 13.2, 13.5, 13.9, 14.2, 14.6, 14.7, 14.10, 14.16, 14.17.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 530-240

Acres: 38.7



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 530-240 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |

F-83

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 530-240

Harvest Volume : 14.8 MBF/acre

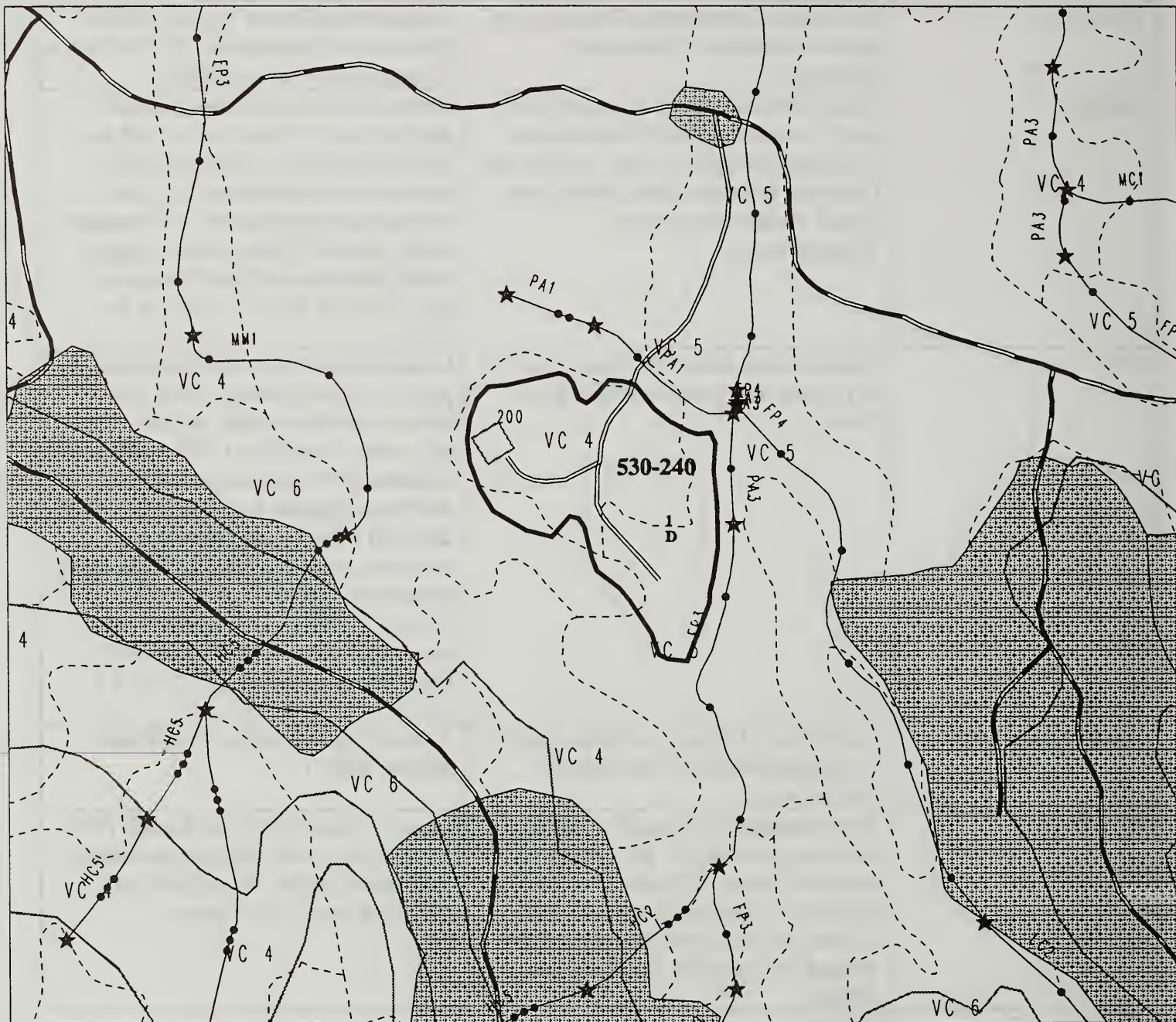
Acres : 38.7

Resource Area	Concerns	Resolution
Silviculture	Inclusions of riparian soils located along northeast boundary. Salmonberry incursions.	Regeneration Harvest Type D. Exclude riparian soils from harvest. PCT within 20 years should be considered.
Fisheries	Buster Creek and Class I tributary border east boundary - several stream classes; see stream protection report. Small Class I tributary to Buster Creek bisects unit. Class I stream crossing (see Transportation).	Portion of unit north of small Class I dropped due to riparian soils. 100' no-commercial harvest buffer and 100' selective harvest buffer along Class I tributary at east boundary. 100' required buffer on small Class I stream. Apply timing restriction to Class I crossing. BMP 12.6, 12.7, 14.6, 14.10, 14.16, 14.17
Soils	Numerous wet areas within unit classified as riparian soils associated with Buster Creek.	Locate boundaries to avoid muskeg areas, yard away from muskeg. Drop from harvest consideration the portion of the unit north of the Class I TTRA tributary to Buster Creek due to riparian soils. Additional riparian soils, located south of the small Class I along the northern boundary, are displayed in GIS. Confirm presence of riparian soils during final layout and exclude from harvest. This area is incorporated into the identified retention area. BMP 12.5, 13.2, 13.3, 13.15
Water Quality/Quantity	Small Class I tributary to Buster Creek is temperature sensitive. No Class III streams in unit.	100-foot required buffer along Class I stream. BMP 12.6
Wildlife	Three muskegs along south, west and northwest boundaries. 4th muskeg in northeast corner. Reduction in structural diversity. Unconfirmed goshawk siting. Located within a Draft Interim-designated medium HCA (USDA Forest Service, 1994b).	Level 1 structure retention through ITM harvest within 100' of identified muskegs and stream buffers. Survey unit for goshawks prior to final layout.
Karst	No karst.	
Visuals/Recreation	No special concerns. Stream buffer areas make it not visible from Rd 20.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	350' in marshy/"muskeggy" area (no alternative possible). Class I stream crossing prior to entering unit, Road 64-77-19.	Class I stream crossing requires construction timing restrictions. Investigate road access from the south. Close road upon completion of harvest.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 530-240

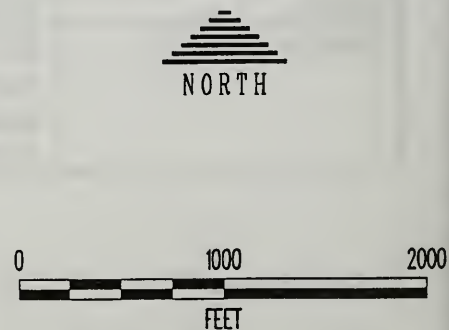
Acres: 38.7



- | | | | |
|--|---------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 530-240 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |

★ Potential Channel Type Change

F-85



March 03, 1995

UNIT PLAN & LAYOUT CARD

LAB BAY PROJECT AREA

Unit #: 530-240 (Continued)

Unit Layout/ Administration	Class I TTRA buffers along Buster Creek and one small tributary through unit. Swing yarding throughout unit. Poor tail trees on west boundaries. Riparian soils.	Drop from harvest the part of unit north of Class I tributary to Buster Creek. Adjust unit boundary at northeast corner for riparian soils, by pulling back unit corner approx. 250'.
Opportunities		

BMP's 12.6, 12.7, 13.2, 13.3, 13.15, 14.6, 14.10, 14.16, 14.17

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 530-241

Acres: 33.6



- Project Boundary
- Unit 530-241
- Other Units
- Timber Type Boundary
- Eagle Nest Buffer (330ft)
- Existing Roads
- Proposed Roads
- Class I Stream
- Class IIa Stream
- Class IIb Stream
- Class III Stream

- Water
- Beach Fringe/Estuary
- Second Growth
- 200 ft contours



★ Potential Channel Type Change

F-87

March 03, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 530-241

Harvest Volume : 41.7 MBF/acre

Acres : 33.6

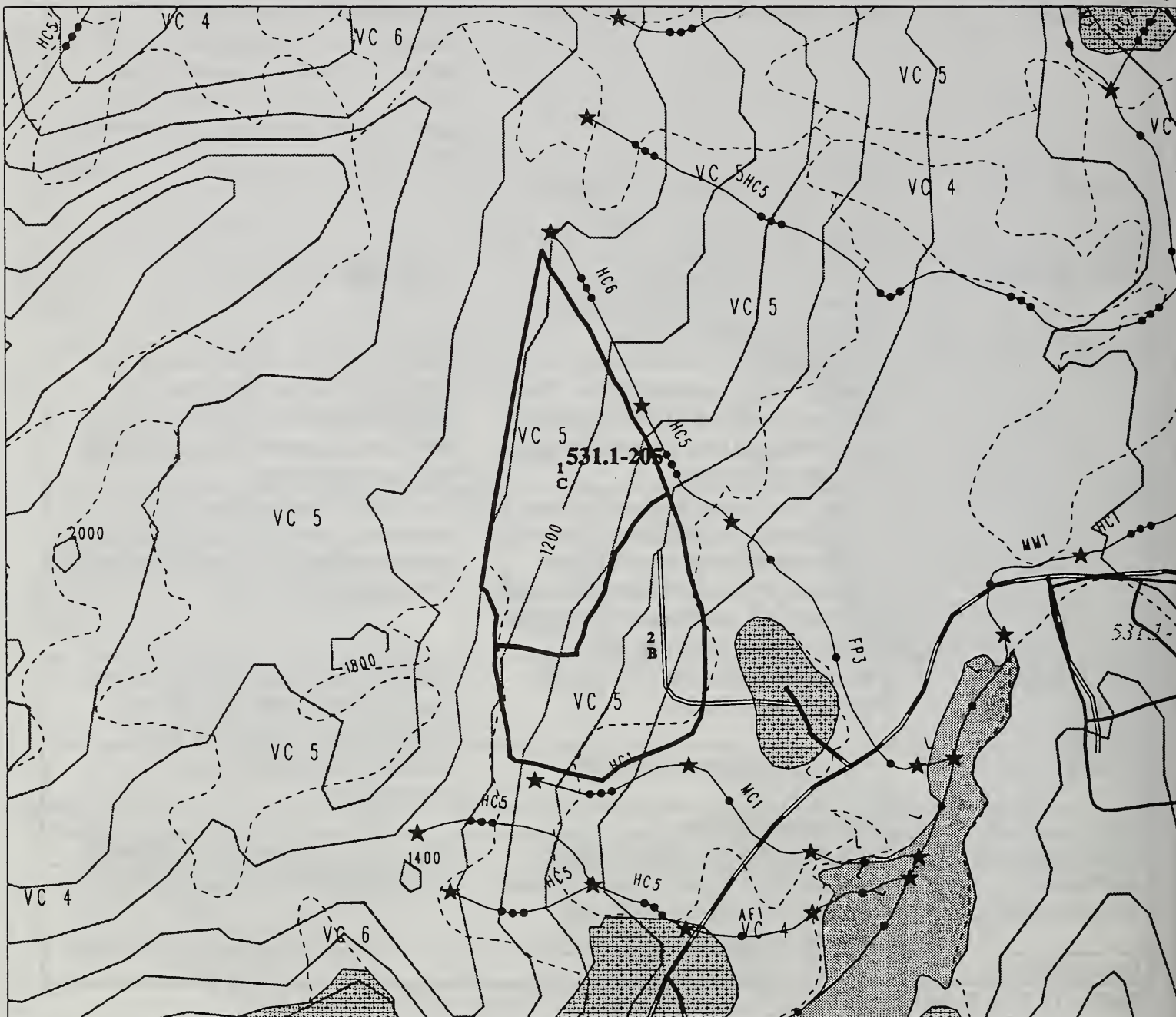
Resource Area	Concerns	Resolution
Silviculture	Probable overstocking in future stand.	Regeneration Harvest Type B. Retain intermediate trees and understory, and harvest dominants and co-dominants within 100-150' buffer to be left along north and east boundaries. Consider PCT within 20 yrs.
Fisheries	No fish bearing streams within or near unit.	
Soils	No special concerns.	
Water Quality/Quantity	Small Class III stream near west boundary - stable, no effect on fish bearing stream. No concern.	Apply BMP 13.2, 14.10
Wildlife	Reduction in structure diversity. High quality cavity excavator habitat. Three bald eagle nests are located east of the unit. Proposed road construction within 1/2 mile of eagle nest.	Level 1 structure retention will be met through 500' buffer along shoreline. Ensure maintenance of 330' eagle nest buffer and implement 1/2-mile seasonal blasting restrictions.
Karst	Phase 1 and 2 karst studies show unit is partially high and moderate vulnerability. Karst features noted outside of unit boundary. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers. BMP 14.9
Visuals/Recreation	Potentially visible from salt water to north (Sumner Strait).	500' no-harvest buffer along shoreline - extends up over steep area and will effectively screen unit from water.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No special concerns.	
Transportation	165' of road in old solution channel.	Close road upon completion of harvest.
Unit Layout/Administration	Unit designed for swing yarder. Shovel yarding is an option if additional temporary roads are established.	Maintain 500' buffer along shoreline.
Opportunities		

BMP's 13.2, 14.9, 14.10.

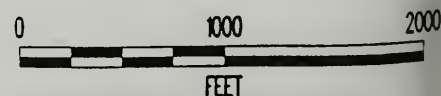
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 531.1-205

Acres: 68.6



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 531.1-205 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 531.1-205

Harvest Volume : 27.6 MBF/acre

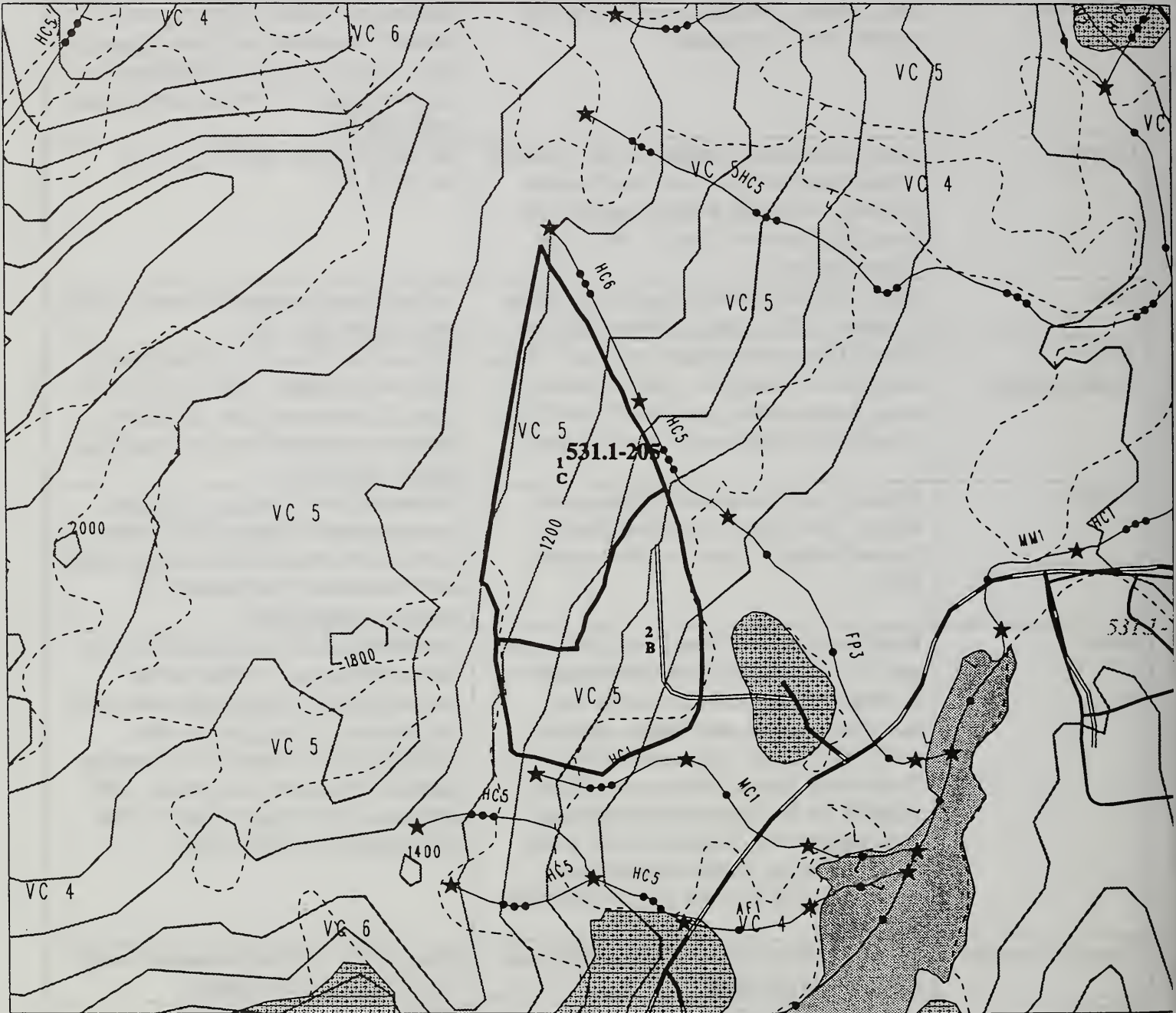
Acres : 68.6

Resource Area	Concerns	Resolution
Silviculture	Steep ground. Probable overstocking with reprod. Red Alder reprod.	Recommend partial suspension where possible. Regeneration Harvest Type B in lower setting and Type C (helicopter) in upper settings. PCT and red alder control within 20 yrs.
Fisheries	Class I streams downstream of unit - potential for sediment routing. Two Class I stream crossings associated with reconstruction of Road 2931 to access Road 65-76-19 (see Transportation).	See water quality. BMP 12.7, 14.6, 14.10, 14.17
Soils	High MMI soils where slopes >60%, but flat in bottom of unit; good sediment buffering.	Achieve partial suspension where possible. Apply BMP 13.5, 13.9
Water Quality/Quantity	Class III stream along north boundary - flows into Class II below unit. Class III stream along east boundary goes directly into Class I. V-notch with slides along south boundary.	Put north unit boundary on topographic break above stream. 100' buffer on both Class III streams as shown on map to ensure sediment buffer between unit and stream. BMP 12.7
Wildlife	Fragment contiguous patch of old-growth habitat. Reduction in structural diversity. Located within an Project-defined medium HCA.	Implement Level 1 structure retention recommendations through 100' buffers on Class III streams that flow along the north and east boundary and retention of unmerchantable timber.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to karst features (sinkholes, grikes, and solution channels), steep slopes, elevation, and Class I stream. Adjacent to proposed Mt. Calder karst Special Interest Area. There is potential for finding additional significant karst features in or adjacent to unit. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Recommend that karst specialist review unit during layout. Achieve partial suspension due to steep slopes and/or thin soils on karst. Avoid yarding over significant karst features (caves, vertical shafts, sinkholes, or insurgences). Any additional karst features located should receive minimum 100' buffers.
Visuals/Recreation	Maximum Modification VQO. Visible from small lake to southeast	Meets VQO. Top unit boundary is under bluffs and irregularly shaped.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	NW corner of unit and Rd. 65-76-18 are possibly within boundary of Special Interest Area.	Ensure that final layout makes adjustment to stay out of Special Interest Area; drop Rd. 65-76-18.
Transportation	Road regrade and reroad Rd 2931~55 station. STA 9+50 65-77-19.1 road crosses what appears to be an old slide area. Road 65-76-18 may cross into Special Interest Area. Two Class I stream crossings required on reconstructed Road 2931 to access 65-77-19.	Road 65-76-18 dropped. Extend Road 65-77-19.1 to north. Close road upon completion of harvest.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 531.1-205

Acres: 68.6



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 531.1-205 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD

LAB BAY PROJECT AREA

Unit #: 531.1-205 (Continued)

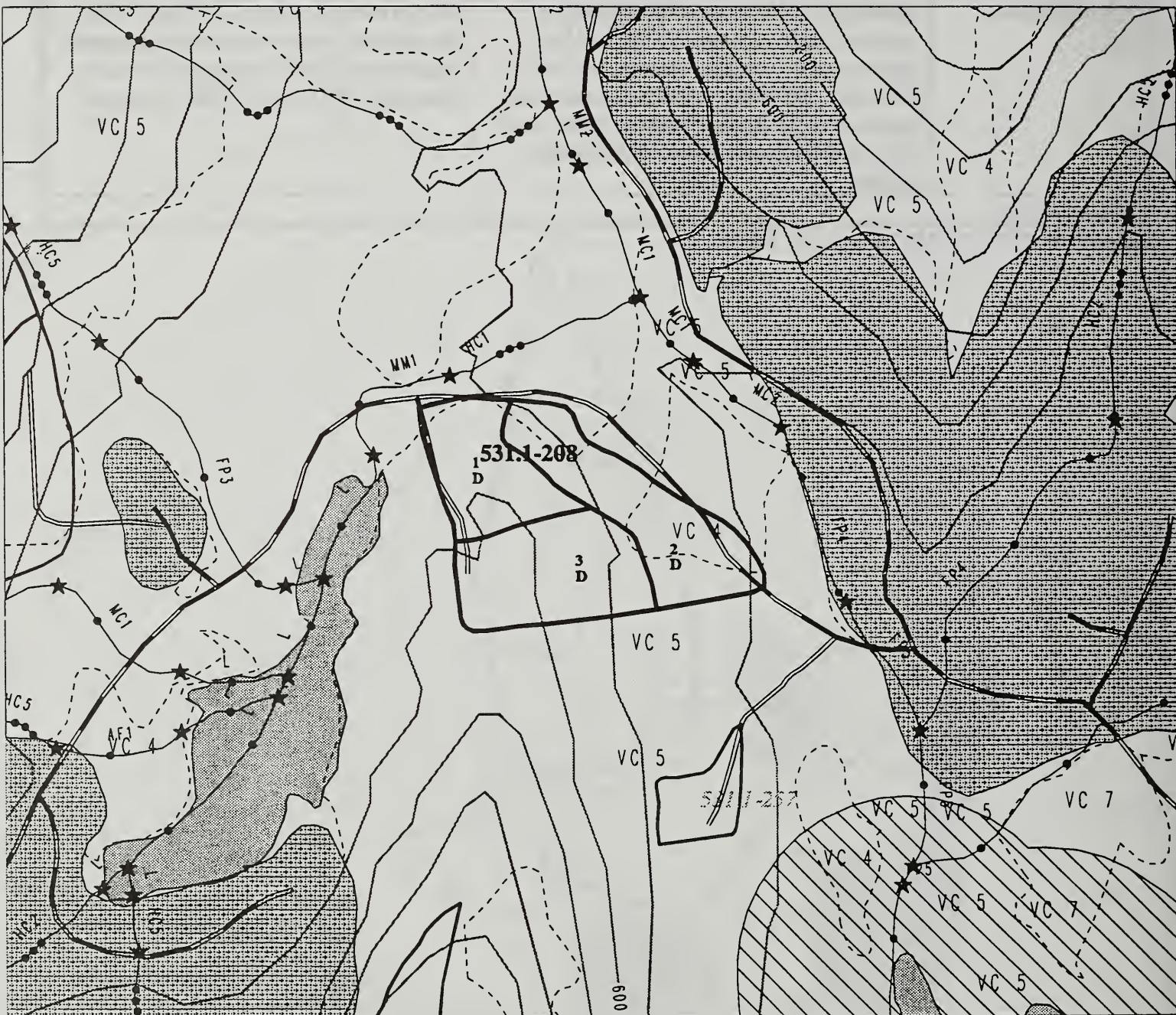
Unit Layout/ Administration	South boundary modification due to logging feasibility. Partial suspension limited in northeast portion of unit, but ground lead impacts are not a major concern. (see soils.) Downhill yard where partial suspension can be achieved. Helicopter yard the upper areas. The lower road has not been entirely field verified.	Boundary and road locations adjusted to remain outside of Special Interest Area. Boundary change is necessary to exclude southern tip of unit; move southern unit boundary 100' north of Class III stream.
Opportunities		

BMP's 12.7, 13.5, 13.9, 14.6, 14.10, 14.17

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 531.1-208

Acres: 47.0



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 531.1-208 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |

F-93

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 531.1-208

Harvest Volume : 21.3 MBF/acre

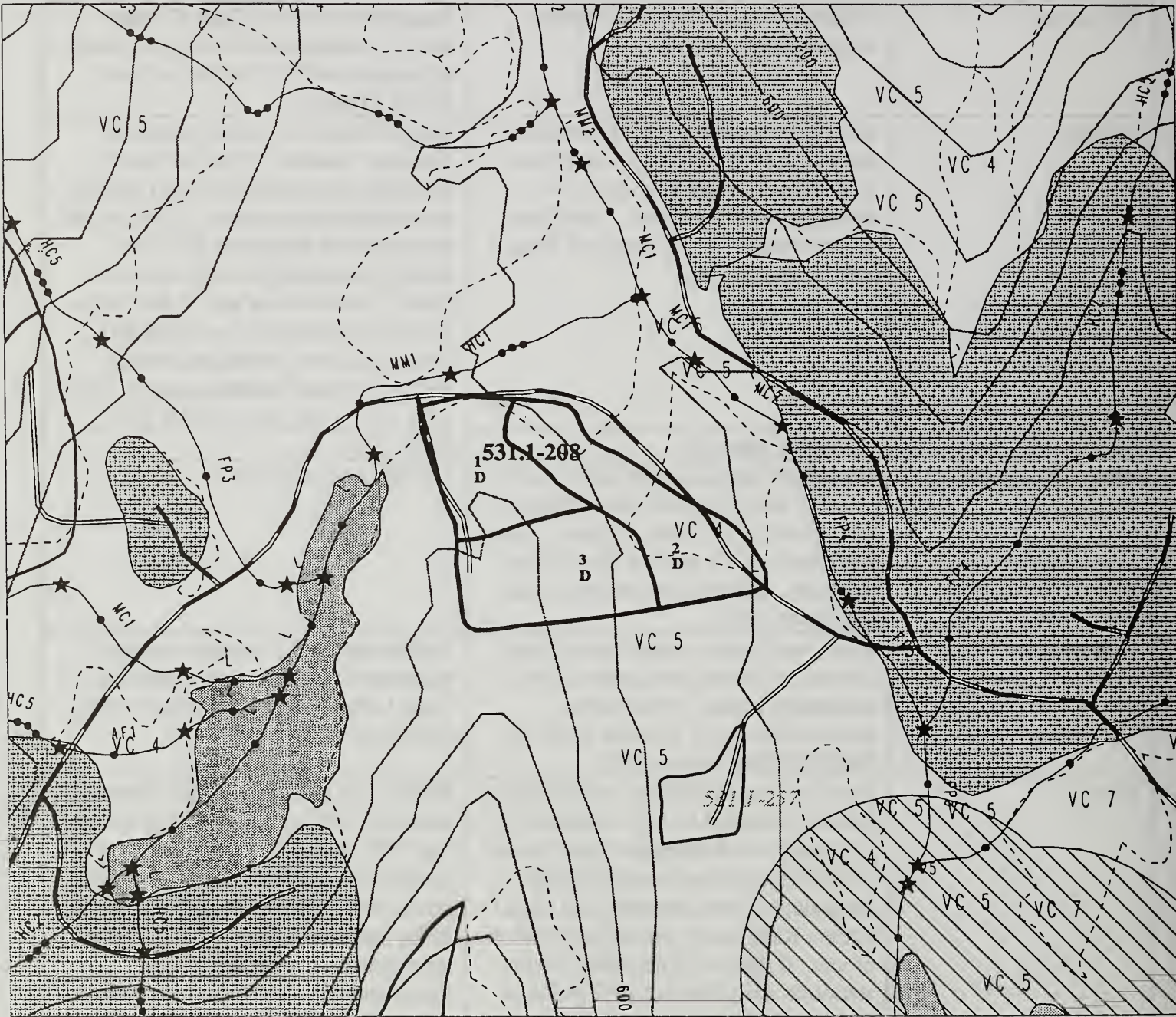
Acres : 47.0

Resource Area	Concerns	Resolution
Silviculture	Probable red alder reprod. Probable overstocking.	Regeneration Harvest Type D; retain areas of greater than 70% slope. Control of red alder and PCT will be required within 20 years.
Fisheries	Class I stream flows around northwest corner of unit (lake outlet). Lake west of unit. Class I stream to east of unit - w/associated riparian area. One Class I stream crossing on reconstructed Road 2931 to access unit.	Where Class I flows along northwest boundary maintain a 150'-300' buffer. 100' buffer on portion of Class I flowing along north unit boundary. Maintain east unit boundary along road 2931-100, thereby maintaining a >100' buffer on Class I stream east of unit. Lake buffer - 100' no-commercial harvest plus 400' selective harvest. Implement timing restriction Class I stream crossing. BMP 12.6, 12.7, 14.6, 14.10, 14.16, 14.17
Soils	No special concerns.	BMP 13.12
Water Quality/Quantity	Small seep channels along north boundary - stable. No special protection required (only flow for very short distance). Class I streams to north and east of unit (see fisheries). Riparian area between road and stream to E.	See fisheries protection.
Wildlife	Heavy use by bear, eagles along Class I streams. Fragment contiguous patch of old-growth habitat. Reduction in structural diversity. Located within an Project-defined medium HCA.	Implement Level 1 structure retention recommendations through maintenance of Class I stream buffers northwest, north and east of unit.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to well-developed karst features (sinkholes, solution channels, grikes), steep slopes, some thin soils, and Class I stream. Karst mostly on southern portion of unit. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Modify unit boundary to avoid slopes in excess of 70%, or retain areas of greater than 70% slopes. Avoid yarding over significant karst features (caves, vertical shafts, sinkholes, or insurgences). Avoid filling and channeling road drainage into sinkholes and insurgences. Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers. BMP 14.9
Visuals/Recreation	Modified landscape - no special concerns, meets VQO's, not visible from Calder Bay.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist
Lands	No concerns.	
Transportation	~3/4 mile of regrade and rerock on the existing 2931-100 road. One Class I bridge replacement necessary on 2931 Road.	Close road upon completion of harvest.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 531.1-208

Acres: 47.0



- | | | | |
|--|---------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 531.1-208 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |

★ Potential Channel Type Change

F-95



UNIT PLAN & LAYOUT CARD

LAB BAY PROJECT AREA

Unit #: 531.1-208 (Continued)

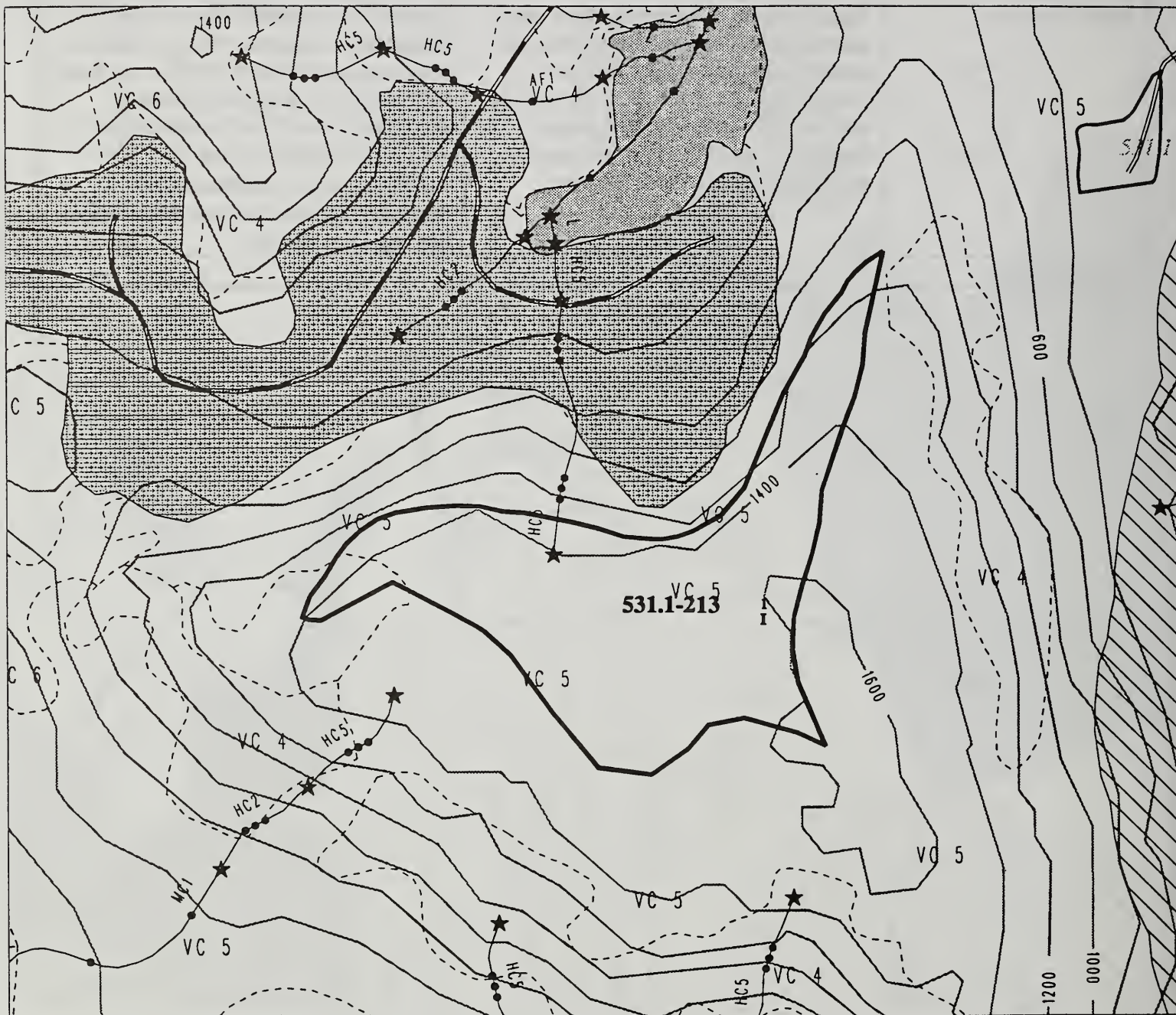
Unit Layout/ Administration	Unit originally layed out as a 10-acre square clearcut to meet restrictive visual guidelines. IDT review allows for larger unit size to harvest timber between planned unit and Road 2931-100. Swing yard westerly settings to designated landings or road. Swing yard easterly settings to existing 2931-100 road.	Unit boundary needs to be changed on the ground to incorporate IDT decision. Unit should be located according to attached map, between Road 65-77-20.1 and Road 2931-100. The southeast boundary should be placed from the end of Road 65-77-20.1 N50°E to road 2931-100. Additional skyline profiles may be necessary to determine final feasibility of this boundary change.
Opportunities		

BMP's 12.6, 12.7, 13.12, 14.6, 14.9, 14.10, 14.16, 14.17

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 531.1-213

Acres: 87.9



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 531.1-213 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |

F-97



March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 531.1-213

Harvest Volume : 14.7 MBF/acre

Acres : 87.9

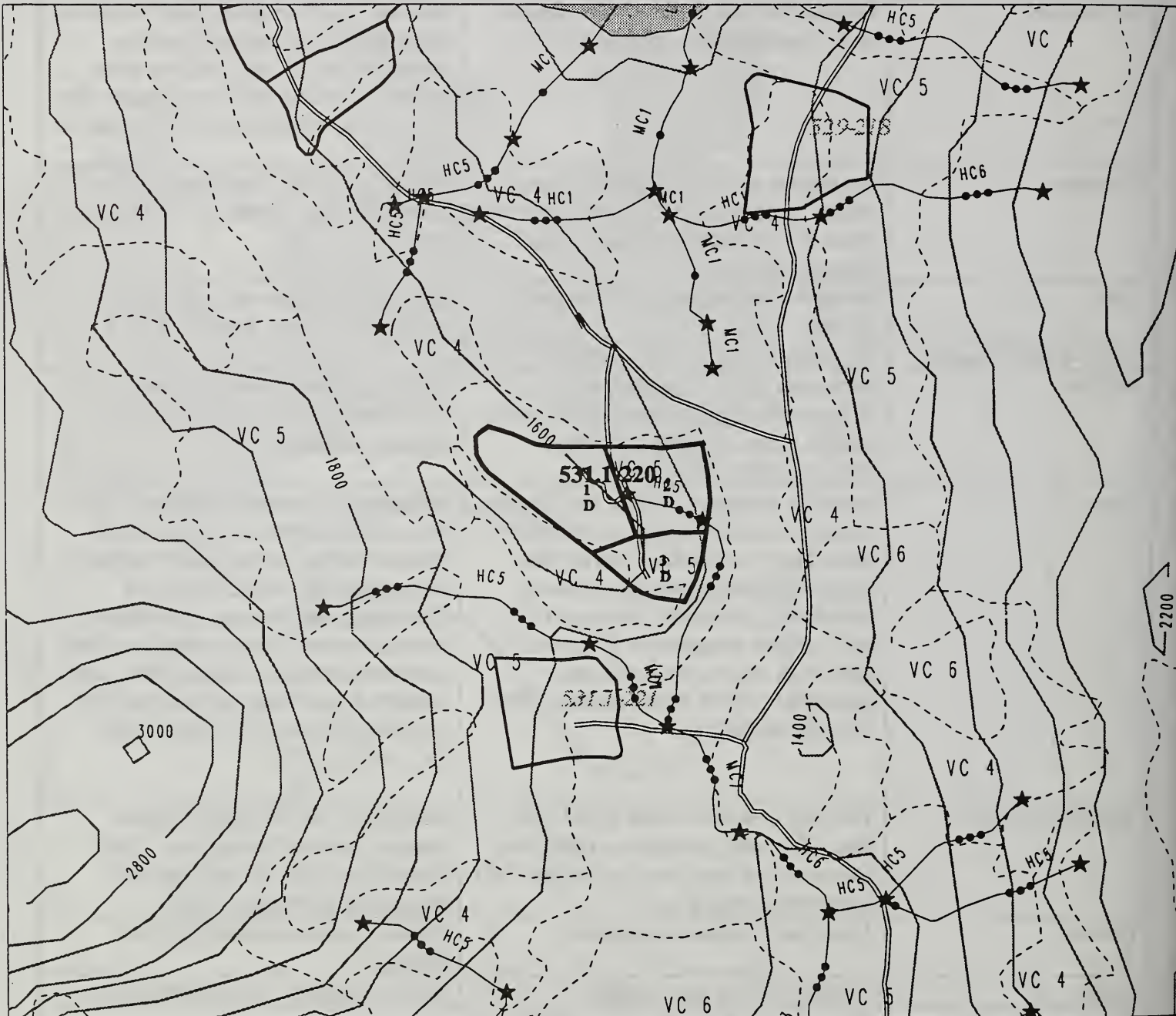
Resource Area	Concerns	Resolution
Silviculture	Evidence of past windthrow throughout unit. Overstocking of reproduction.	Harvest Type I; retain at least 50% of the basal area in all diameter classes to reduce the chance of windthrow to the residual stand, protect karst features, and meet visual requirements. PCT within 20 yrs.
Fisheries	No surface water in unit. Five Class I stream crossings required on reconstructed Road 2931 to access heli landing (see Transportation).	Implement timing restriction on Class I stream crossings. BMP 12.7, 14.6, 14.10, 14.17.
Soils	Instability on steep slopes below unit - 100%+	Keep unit boundary on ridge top area above slope break. BMP 13.2, 13.5
Water Quality/Quantity	No surface water in unit (limestone)	
Wildlife	Reduction in structural diversity. Fragment contiguous patch of old-growth habitat. Located within an Project-defined medium HCA.	Select windfirm boundaries. Harvest Type I will exceed Concern Level 1 structure retention.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to very well developed karst features (sinkholes, solution channels, cone karst), elevations exceeding 1400', and probable insurgences. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Individual tree selection (Harvest Type I) due to high density of significant karst features (caves, vertical shafts, sinkholes, or insurgences). Avoid filling and channeling road drainage into sinkholes and insurgences. Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers. BMP 14.3, 14.5, 14.9
Visuals/Recreation	East part of unit is visible from Calder Bay. This unit, in addition to other units surrounding Calder Bay, exceed the CVD threshold for this area.	Modify the unit boundary to retain standing trees on the east slope facing Calder Bay. This, along with other mitigation, will reduce CVD.
Cultural	No cultural resources identified.	Contact Forest archaeologist if any findings.
Lands	Borders LUD II area on south.	Survey boundary prior to final layout.
Transportation	Flight path will require at least 2500' from north edge of operating area to keep flight path down below 40%. Need large landing on RD. 2931-100. Reconstruction of RD. 2931 for helicopter landing will require five Class I stream crossings. (Also see units 531.1-205, 208, 257).	
Unit Layout/ Administration	Road access unfeasible due to topography. Directional falling required around larger sinkholes.	Helicopter logging required with 10,000 lb. payload capacity.
Opportunities		

BMP's 12.7, 13.2, 13.5, 14.3, 14.5, 14.6, 14.9, 14.10, 14.17

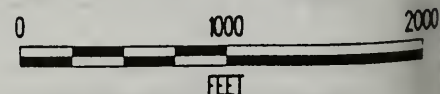
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 531.1-220

Acres: 21.6



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 531.1-220 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-99

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 531.1-220

Harvest Volume : 26.0 MBF/acre

Acres : 21.6

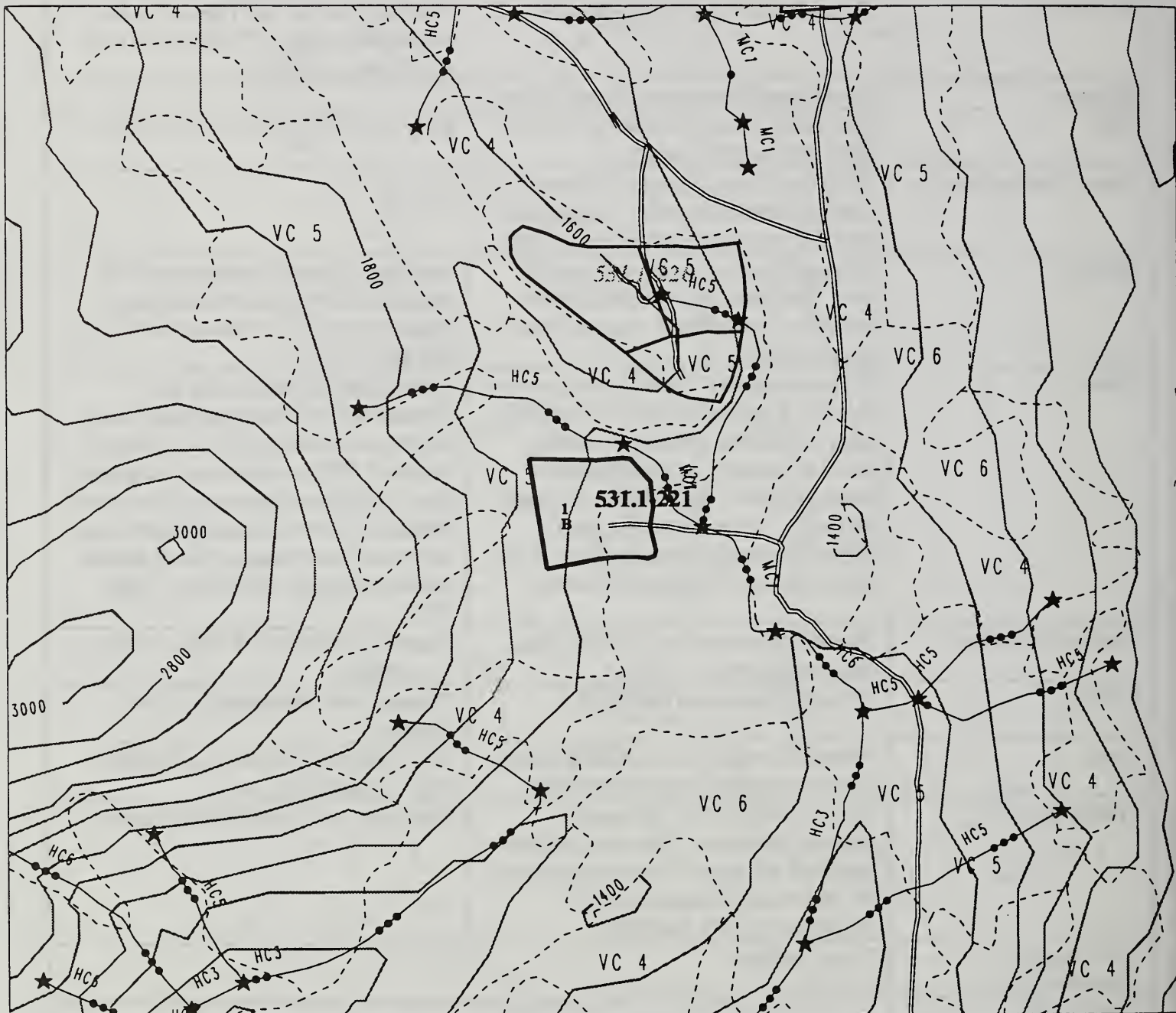
Resource Area	Concerns	Resolution
Silviculture	Overstocking of natural reproduction.	Regeneration Harvest Type D. Retain areas $\geq 60\%$ slope. PCT within 20 years should be considered.
Fisheries	No fish-bearing streams affected by unit.	
Soils	High MMI where slopes $> 60\%$ (below knob, southwest boundary)	BMP 13.9, 13.12, 13.5, 12.11, 14.10
Water Quality/Quantity	One small Class III stream in lower portion of unit near center - stable, well armored, no special protection required.	
Wildlife	Muskegs southwest, east and north of unit. Reduction in structural diversity. Increase in road density in a previously unroaded area.	Implement Level 1 structure retention through ITM within 100' of muskegs. Close road 65-77-10 between units 531.1-230 and 529-212.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to karst features (sinkholes, solution channels, grikes), elevations exceeding 1400', steep slopes, and some thin soils. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Avoid filling and channeling road drainage into sinkholes and insurgences. Modify unit boundary to avoid slopes in excess of 70%, or retain areas of greater than 70% slopes. Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers. BMP 14.9
Visuals/Recreation	Potential recreation site near lake with high visual quality.	Establish trail system to alpine country west of lake.
Cultural	No cultural resources identified.	Contact Forest archaeologist if any findings.
Lands	Proposed Special Interest Area is located west of unit approximately 500'-1000'.	Survey Special Interest Area boundary prior to final unit layout.
Transportation	Rd. 65-77-22.1, 300' full bench - possible quarry site. This road cannot be continued through unit due to rock slope. Rd. 65-77-22.1A requires a 50' switchback at 10% favorable.	Close road upon completion of harvest.
Unit Layout/ Administration	Swing yarding.	
Opportunities		

BMP's 12.11, 13.5, 13.9, 13.12, 14.9, 14.10

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 531.1-221

Acres: 10.4



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 531.1-221 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 531.1-221

Harvest Volume : 21.3 MBF/acre

Acres : 10.4

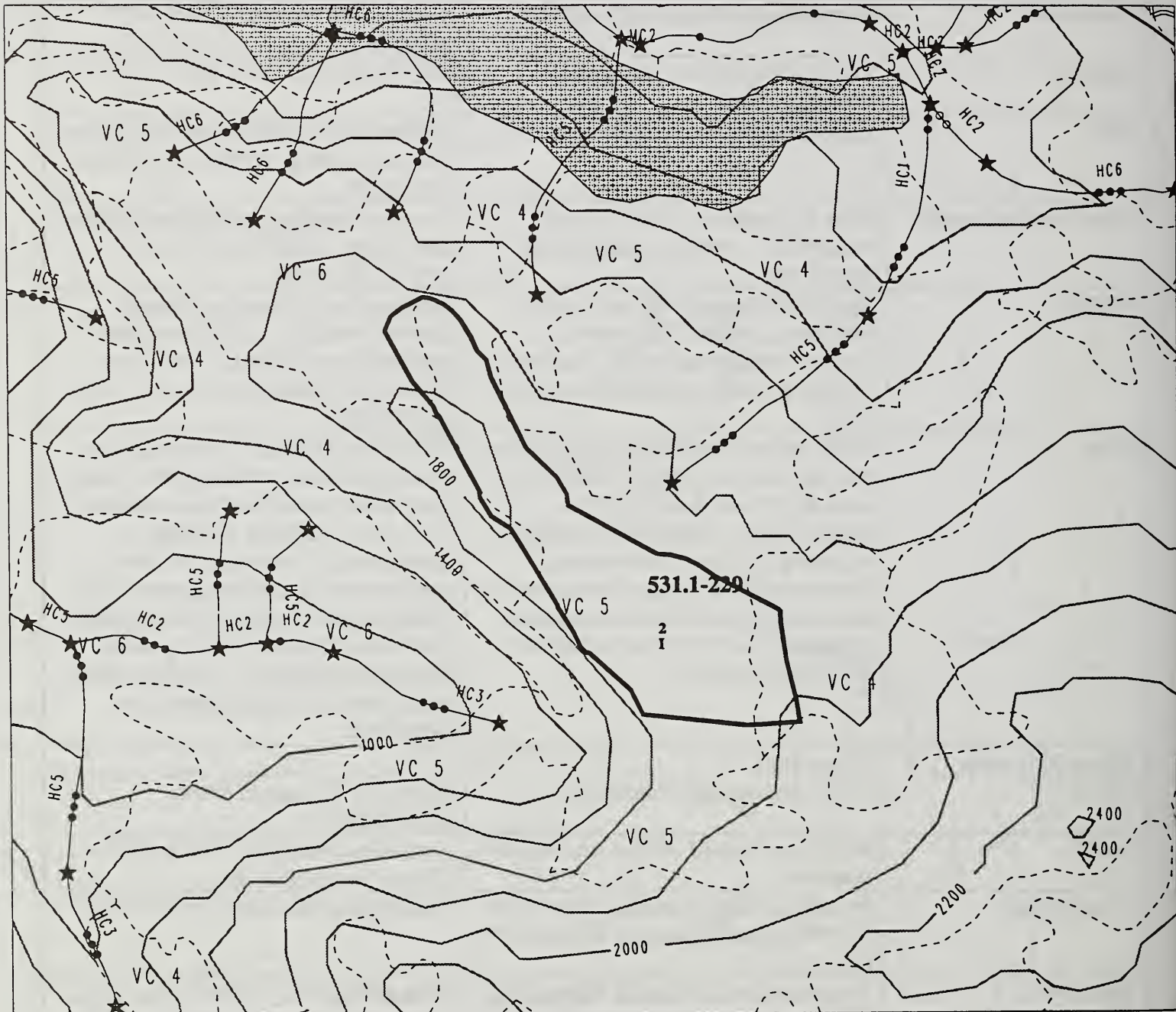
Resource Area	Concerns	Resolution
Silviculture	Overstocking with natural reproduction.	Regeneration Harvest Type B. PCT within 20 yrs.
Fisheries	Two Class II stream crossings (See Transportation).	BMP 12.6, 14.6, 14.10, 14.16, 14.17
Soils	High MMI soils above landing location.	Achieve at least partial suspension where downhill yarding. BMP 13.2, 13.5, 13.7, 13.9, 13.12
Water Quality/Quantity	Class III stream near north and east boundaries - potential for slides along upper banks.	Keep unit boundary on topographic break above creek. BMP 12.6, 13.2, 13.3, 13.5, 12.11, 14.10
Wildlife	Road disturbance of high use "travel" area along muskeg. High bear use. Unconfirmed goshawk siting. Increased roading in a large, previously unroaded area.	Maintain Level 1 structure through harvest prescription. Survey unit for goshawks prior to final layout. Close Road 65-77-20 between units 531.1-230 and 529-212.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to karst features (grikes, solution channels, sinkholes), elevations exceeding 1400', and steep slopes. Proximal to karst Special Interest Area. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Unit boundary should be moved below slopes equal to or exceeding 70%. Avoid yarding over significant karst features (caves, vertical shafts, sinkholes, or insurgences). Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers. Avoid filling or channeling of road drainage into caves, vertical shafts, sinkholes, or insurgences.
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	Adjacent to Special Interest Area on west boundary.	Locate Special Interest Area boundary prior to final unit layout.
Transportation	Stream crossings at stations R 6+40 and R 2+70 (Class II streams). Require 48" culverts.	Close road upon completion of harvest.
Unit Layout/ Administration	Swing yard west of landing with running skyline, excellent deflection. Shovel log east of landing.	West unit boundary needs to be reflagged during layout to exclude areas equal to or exceeding 70% slope.
Opportunities	Recreation opportunity - Upgrade ROS spectrums.	

BMP's 12.6, 13.2, 13.3, 13.5, 13.7, 13.9, 13.12, 14.6, 14.10, 14.16, 14.17.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 531.1-229

Acres: 47.9



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 531.1-229 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 531.1-229

Harvest Volume : 11.1 MBF/acre

Acres : 47.9

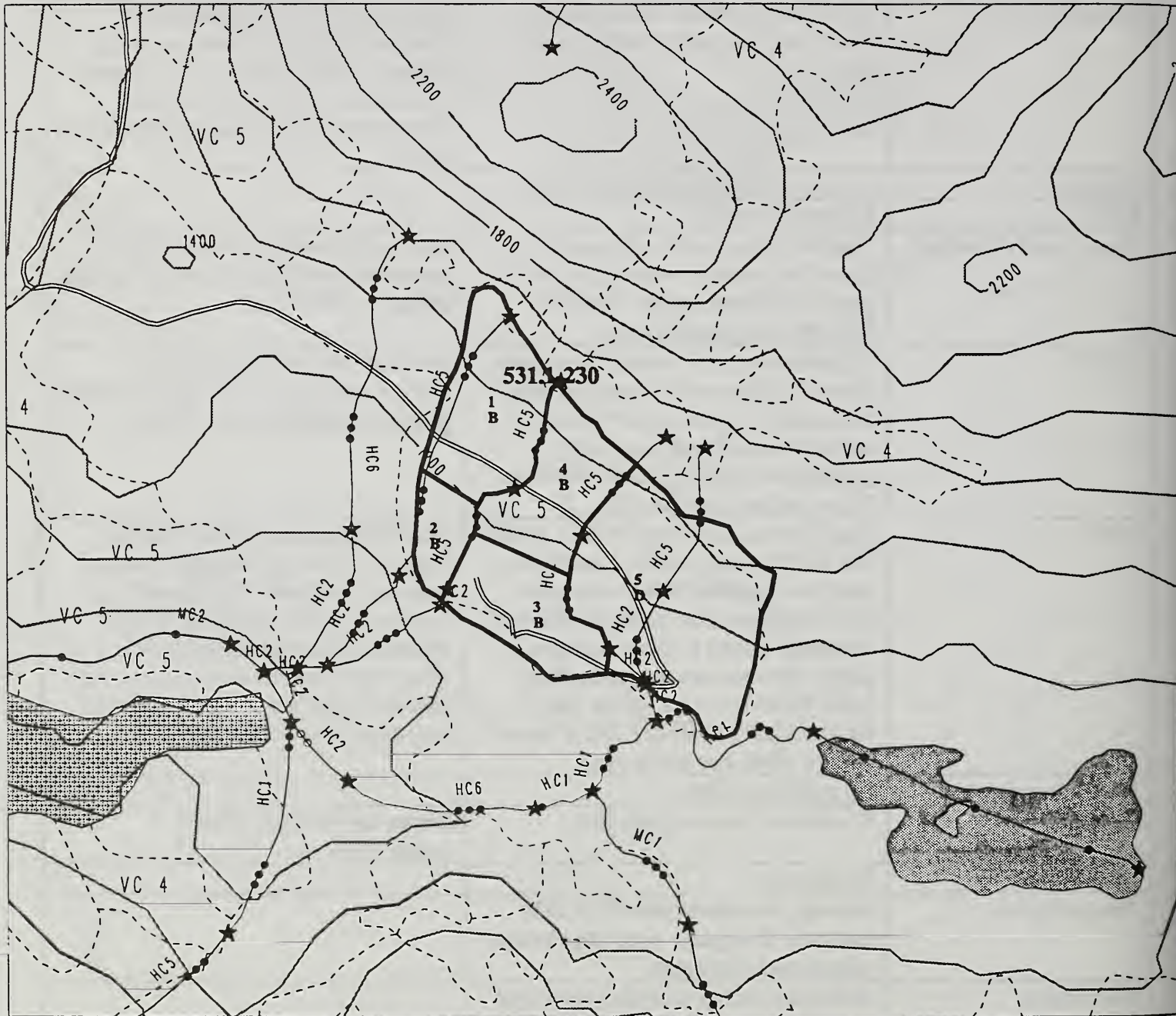
Resource Area	Concerns	Resolution
Silviculture	1600'-1800' elevation - large openings may create frost pocket. Regeneration concern.	Harvest Type I using individual tree selection. Retain 60% basal area in all diameter classes to provide for adequate regeneration and thermal protection. Evaluate for regeneration establishment at Year 3.
Fisheries	No fish-bearing streams in or near unit.	
Soils	No special concerns.	
Water Quality/Quantity	Class III stream near south boundary - flows from meadow southeast of unit into cave in southwest corner. Mostly bedrock, high gradient, stable.	Move unit boundary north of stream to protect other resource values (caves, high deer use). BMP 13.2
Wildlife	High deer use area on south 1/4 of paper plan unit. Extensive tall grass meadow associated w/ south end and muskeg to north. New entry into previously unaltered landscape. Located within an Project-defined medium HCA.	Harvest Type I will exceed Level 1 structure retention. Avoid grass meadows along north and south boundaries.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to extremely well-developed karst throughout unit (sinkholes, solution channels), at least 8 caves, insurgences, resurgences, and elevation exceeding 1400'. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Use individual tree selection (Harvest Type I). Retain 100' buffers around all caves and sinkholes. Directionally fall trees away from cave entrances and sinkholes. Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers.
Visuals/Recreation	No special concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires the construction of the 2930 road prior to logging. Need large landing with through flight path.	
Unit Layout/ Administration	Helicopter yarding to landing associated with unit.	
Opportunities		

BMP 13.2.

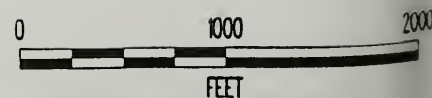
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 531.1-230

Acres: 76.1



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 531.1-230 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-105

March 03, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 531.1-230

Harvest Volume : 27.4 MBF/acre

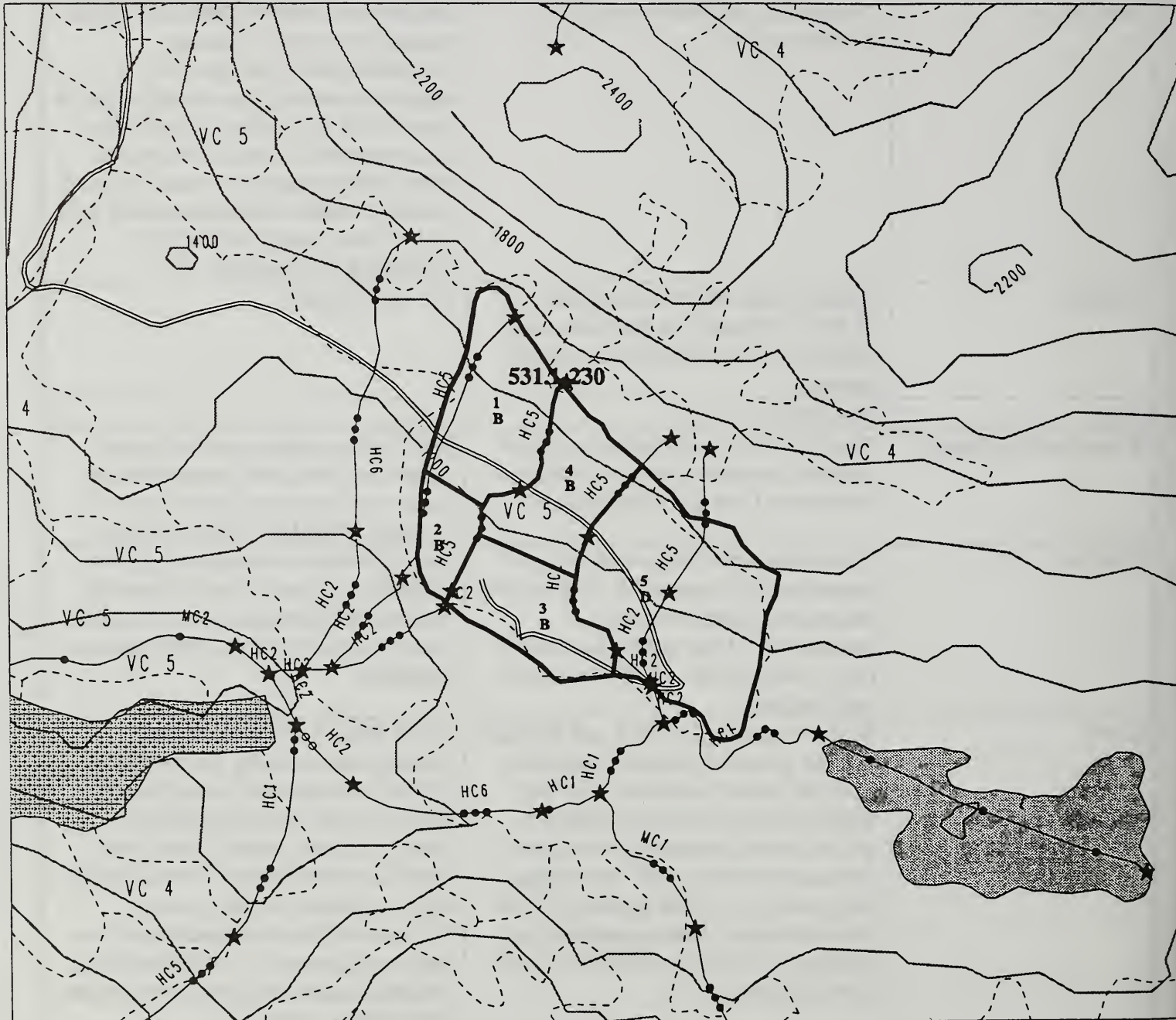
Acres : 76.1

Resource Area	Concerns	Resolution
Silviculture	Overstocking, red alder stocking on disturbed soils.	Regeneration Harvest Type B in settings making up western 2/3 of unit. Regeneration Harvest Type D in easternmost setting. Site-specific retention areas within the unit were identified by field personnel. These, in conjunction with harvest prescription, would be used to meet the specified Concern Level. PCT and red alder control within 20 yr. minimize soil disturbance.
Fisheries	Class II stream downstream of unit ~1,000' - high gradient streams flowing through unit have potential to transport sediment.	See water quality.
Soils	No special concerns.	
Water Quality/Quantity	Four Class III streams within unit; high gradient, moderate potential to transport sediment to Class II stream below unit.	Split yard on western stream (largest). Achieve at least partial suspension and minimize # of yarding roads across streams. BMP 12.6, 13.9, 13.16, 14.6
Wildlife	Upper extension of large diameter over-mature stands in watershed. Pine marten and potential goshawk habitat opportunities. High quality deer winter range. Roading into a large, previously unroaded area.	Level 1 structure retention through the following: Maintain 2 small islands of timber along north side of unit (see map). Retain snags along 100' width inside unit boundary.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to very well-developed karst features (solution channels, sinkholes, grikes), caves, insurgences, resurgences, elevation exceeding 1400', steep slopes, and proximity to Class II stream. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Avoid filling and channeling road drainage into sinkholes and insurgences. Modify unit boundary to avoid slopes in excess of 70%, or retain areas of greater than 70% slopes. Avoid yarding over significant karst features (caves, vertical shafts, sinkholes, or insurgences). Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers. BMP 14.9
Visuals/Recreation	Potential recreation on site with high visual quality near lake.	Recommend retaining buffer of timber in southeast corner of unit for visuals from lake.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	

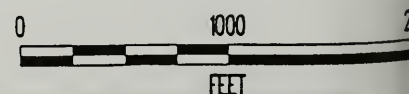
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 531.1-230

Acres: 76.1



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 531.1-230 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD

LAB BAY PROJECT AREA

Unit #: 531.1-230 (Continued)

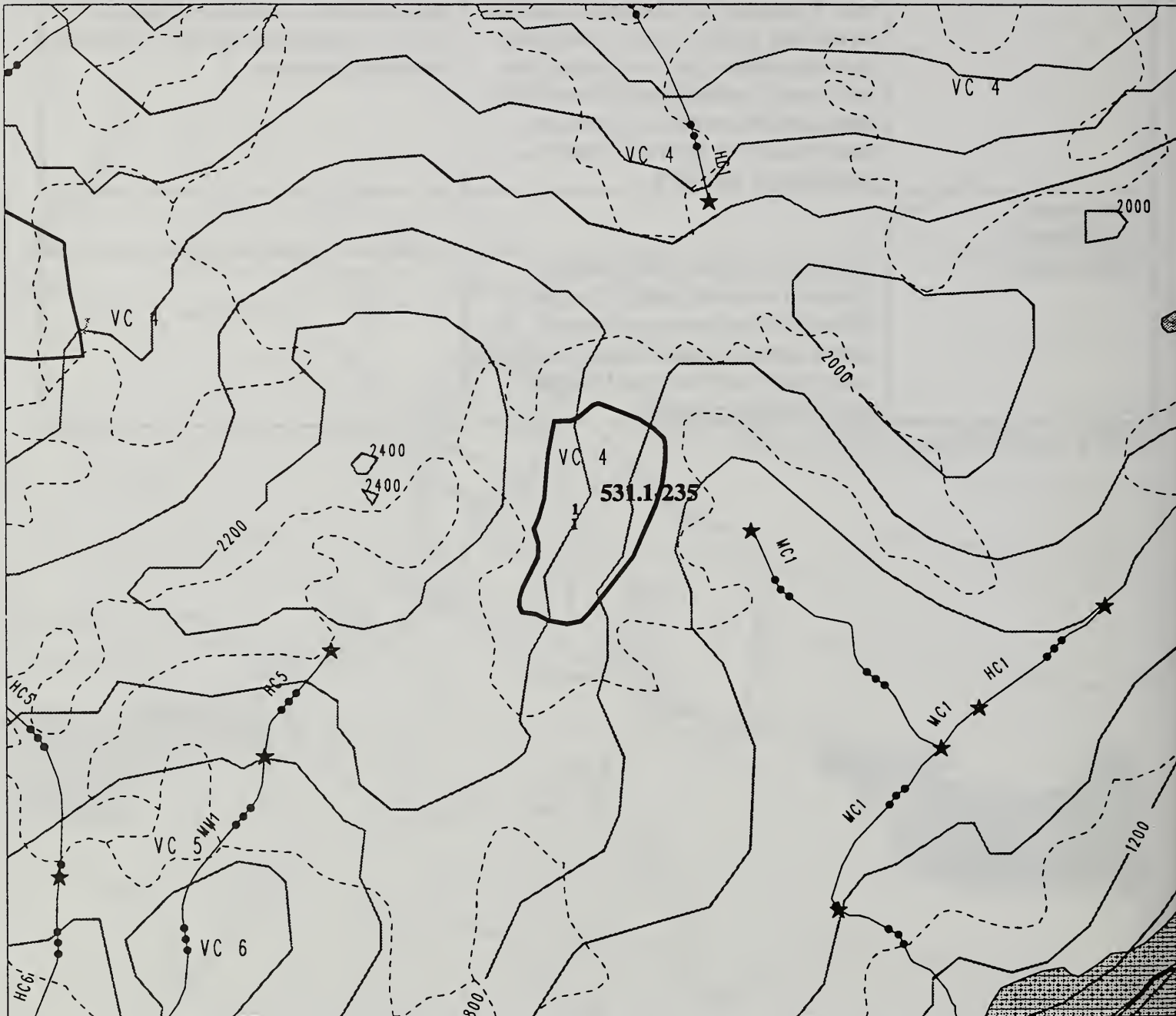
Transportation	Large slackline yarder required to harvest unit. Partial and full suspension available on east half of unit. Access road through northern portion of unit was added after unit layout. Landings on this road should allow partial suspension over the unit. Road network tie to Calder Creek was eliminated by the USFS.	Alternate road network tie to the north needs to be field verified North of unit 529-214. Close Road 65-77-23 following completion of harvest.
Unit Layout/ Administration		
Opportunities	Opportunity to stock lake with fish. Outlet stream below waterfall (~300" below lake) has good spawning and rearing habitat. Conduct studies to assess water quality and habitat in lake and effect on other organisms.	

BMP's 12.6, 13.9, 13.6, 13.16, 14.6, 14.9.

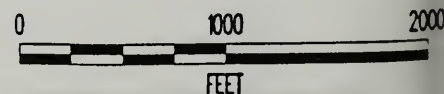
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 531.1-235

Acres: 19.1



- | | | | |
|---|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 531.1-235 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| ★ | Potential Channel Type Change | | |



F-109

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 531.1-235

Harvest Volume : 3.3 MBF/acre

Acres : 19.1

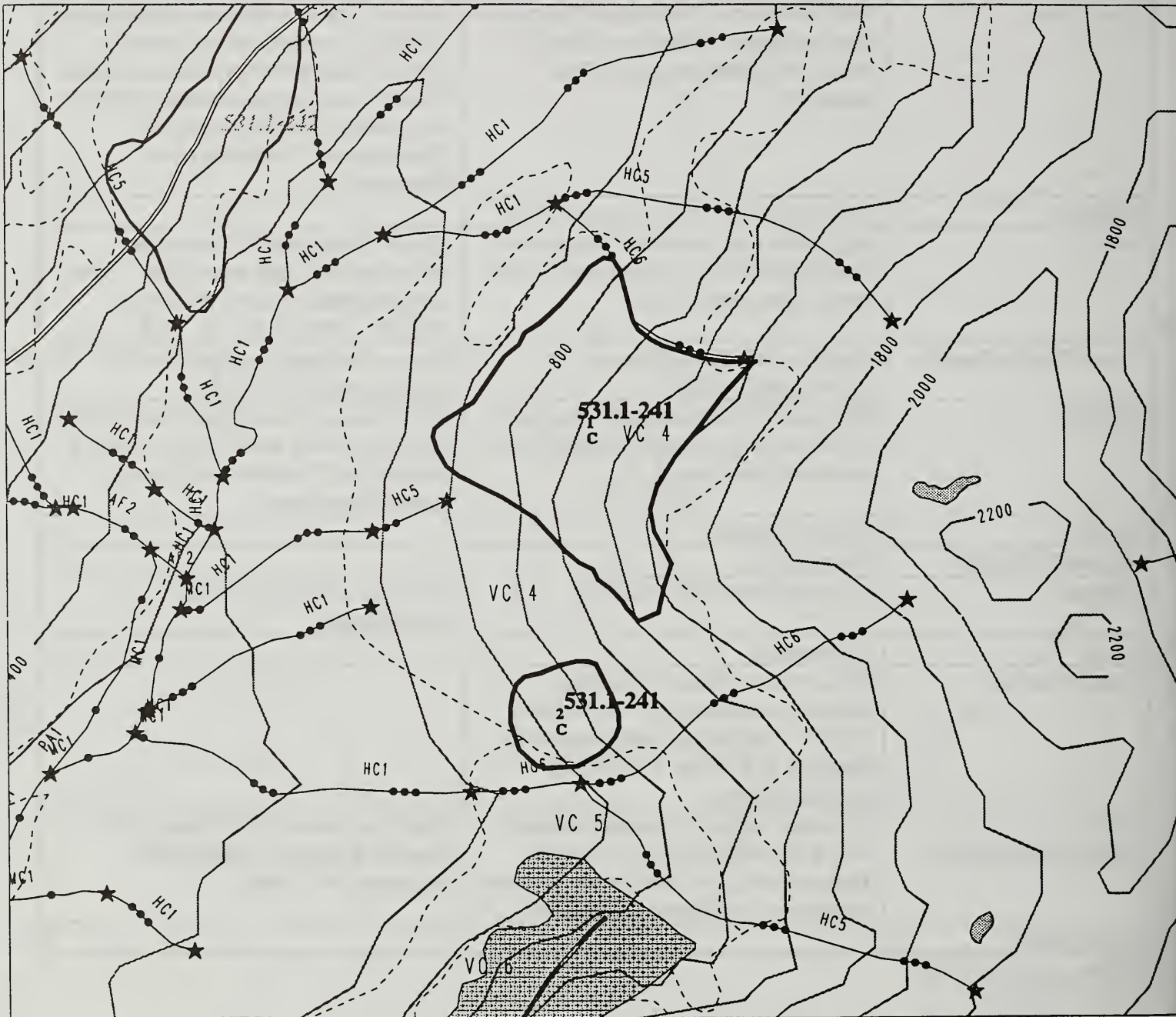
Resource Area	Concerns	Resolution
Silviculture	1600-2000' elev. Protection of soils and advance reprod. Restocking within 5 years. Windthrow potential. Slope instability.	Harvest Type I - individual tree selection within the two patches designated for harvest. Retain 75% of basal area in unit to ensure adequate restocking and reduce the potential of future windthrow. Helicopter log. Protect advance reproduction.
Fisheries	No fish-bearing streams in or near unit.	
Soils	High MMI soils, numerous pistol-butted trees, small slide in concave pocket along bottom line, center of unit.	Type I harvest with 75% retention; helicopter yard - full suspension. Leave unmerchantable trees to retain root strength. BMP 13.2, 13.5, 13.9
Water Quality/Quantity	Several small Class III streams (<2' active channel width).	Remove logging-created debris after yarding complete (CT6.51)
Wildlife	High use deer summer range. Alteration of isolated large diameter forest stand and associated biodiversity.	Buffer alpine meadows and muskeg both above and below harvest areas. Level 2 structure will be maintained through harvest prescription.
Karst	No karst features.	
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	No concerns - helicopter yarding. Requires construction of '89-'94 2900-100 Rd. Need large landing capable of handling 10 MBF/hr. 4,000-5,000' yarding distances.	
Unit Layout/Administration	Helicopter logging requiring helicopter with 8,000-10,000 payload capacity. High percentage of defect making yarding expensive. Leave trees 12" and less.	Type I harvest with 75% retention of basal area within 2 small patches designated for harvest.
Opportunities		

BMP's 13.2, 13.5, 13.9.

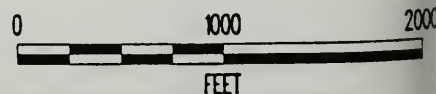
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 531.1-241

Acres: 55.3



- | | | | |
|---|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 531.1-241 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| ★ | Potential Channel Type Change | | |



F-111

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 531.1-241

Harvest Volume : 13.4 MBF/acre

Acres : 55.3

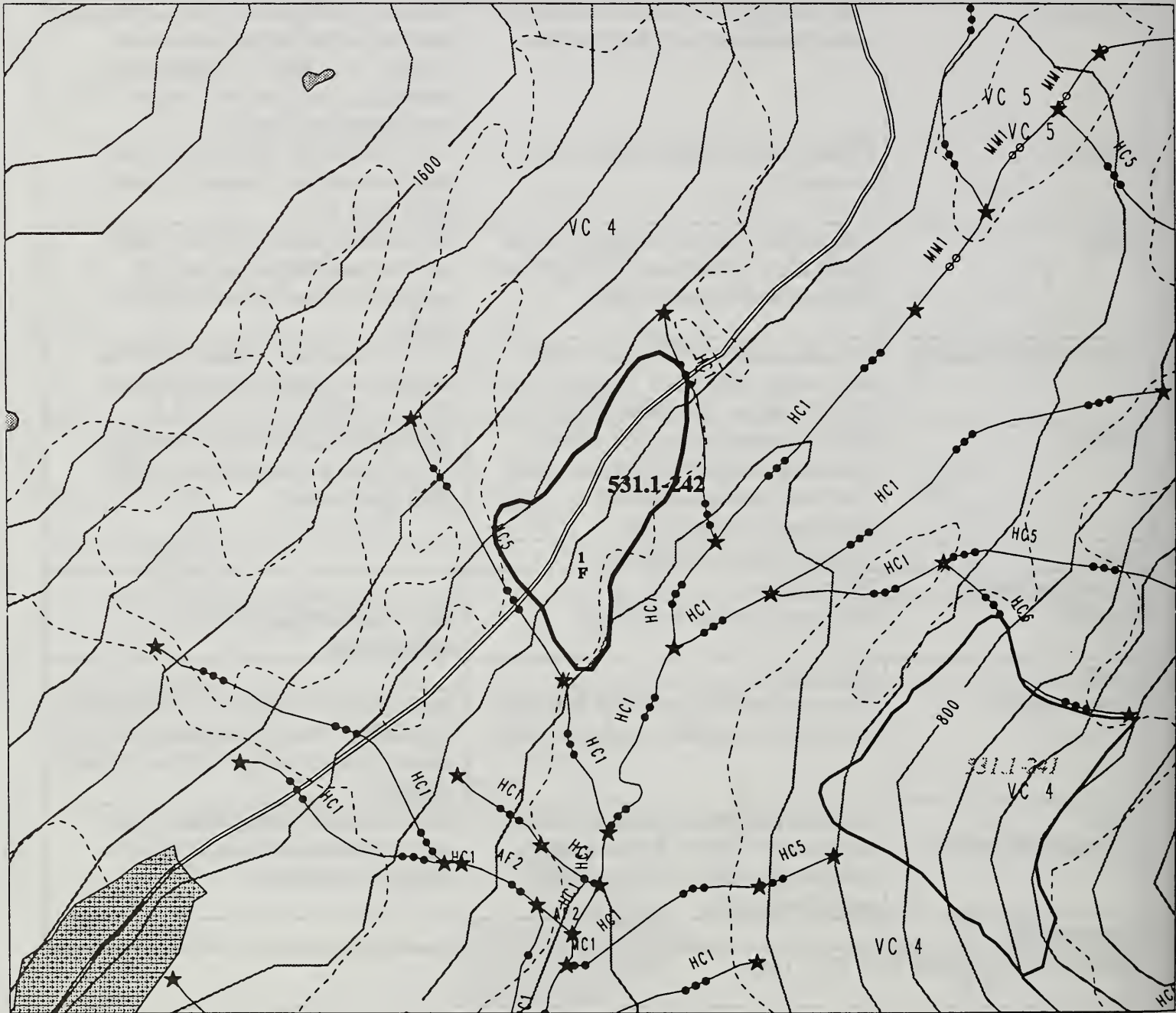
Resource Area	Concerns	Resolution
Silviculture	Very steep slopes. Poor site productivity within portions of unit. Shallow soils.	Harvest Type C. Protect soil and advance reproduction by suspension and heli-logging. Unit boundary altered from paper plan to exclude areas above 1200' and areas of poor timber.
Fisheries	Class II stream that flows into a Class I to west of unit.	>100' buffer from Class II due to no merchantable trees in valley bottom. BMP 12.6, 12.7
Soils	Very shallow organic soils over marble above 1200' - disturbance will likely lead to greatly reduced productivity.	Remove area above 1200' elev. from suitable base. Helicopter log, full suspension in rest of unit. BMP 13.5, 13.9
Water Quality/Quantity	Several small Class III streams within unit - not incised, stable. Deeply incised Class III stream along south boundary.	CT6.51 on streams. Mark south unit boundary on topographic break above channel. BMP 12.7, 13.2, 13.3
Wildlife	Entry into previously unaltered unit. Alteration of large tree diameter stands which are uncommon in the area. High-use of game at northern tip.	Unit layout modified to exclude areas above 1200' and areas of poor timber. Helicopter access.
Karst	No karst features identified.	
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Road location from north was attempted but proved unfeasible - numerous cliffs.	Helicopter yard. Use end of Rd. 2920 for log landing. Roads to unit infeasible due to the extreme amount of full bench/rock blasting.
Unit Layout/Administration	Helicopter logging requiring a helicopter capable of 10,000 lb. payloads. High percentage of defect in areas makes expensive logging.	Harvest areas of higher quality timber. Areas of poor timber and areas above 1200' elev. excluded.
Opportunities		

BMP's 12.6, 12.7, 13.2, 13.3, 13.5, 13.9.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 531.1-242

Acres: 26.5



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 531.1-242 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 531.1-242

Harvest Volume : 11.7 MBF/acre

Acres : 26.5

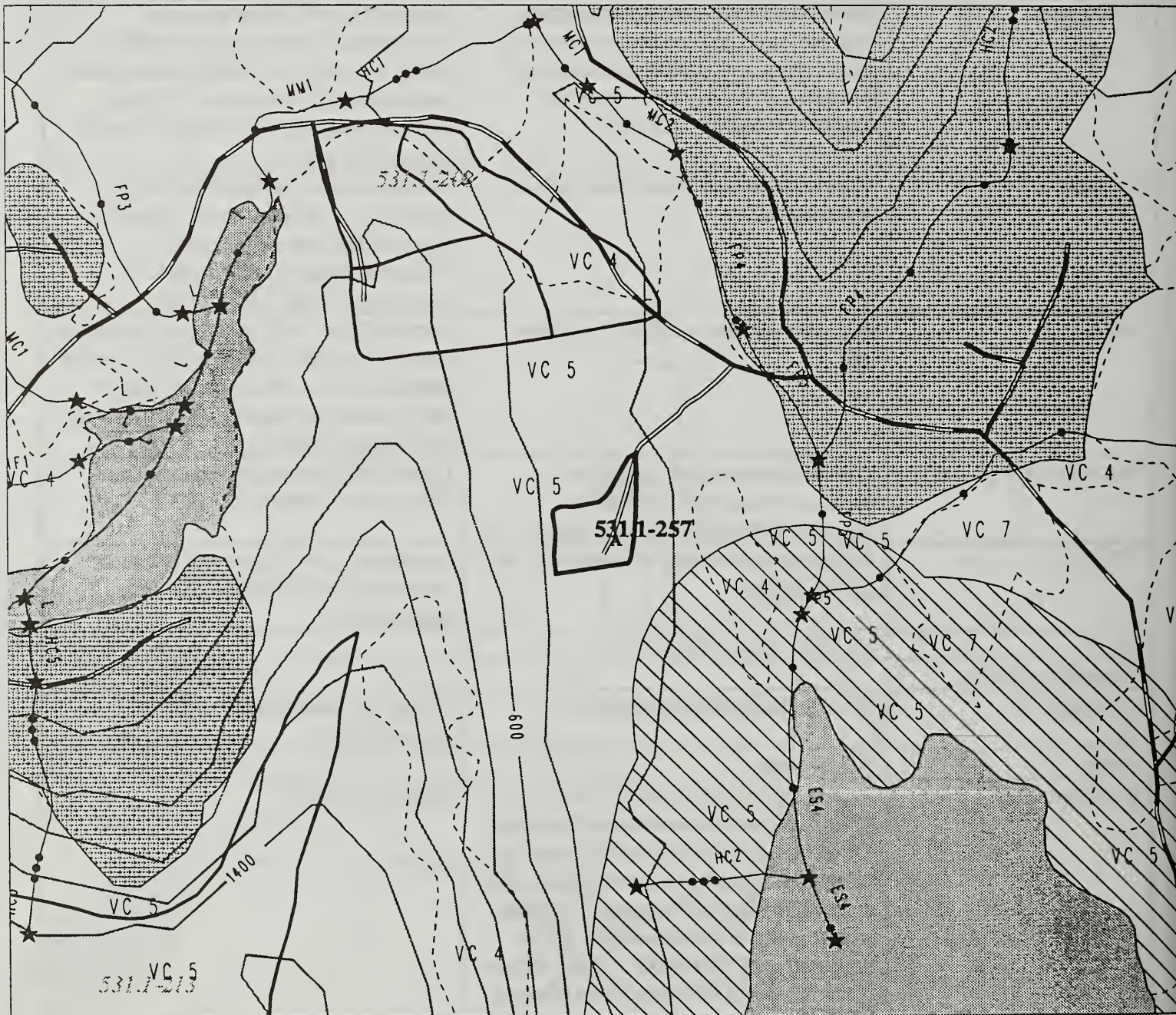
Resource Area	Concerns	Resolution
Silviculture	Shallow soils over bedrock throughout unit, poor site productivity, volume per acre is approx. 6-8 MBF over most of unit (contrary to the forest inventory estimates applied to this site).	Harvest Type F. Select to retain yellowcedar. Harvest only areas in unit where volume is >8 MBF/acre and partial suspension can be achieved. Protect advanced regeneration during harvest for future stand growth.
Fisheries	Class II stream that flows into a Class I to east of unit.	Remove from suitable timber base if protection of soils resources cannot be achieved with partial suspension. Helicopter logging will achieve full suspension. BMP 13.9, 13.12
Soils	Shallow soils over bedrock throughout unit.	Harvest Type F will retain trees, reducing erosion potential. Achieve at least partial suspension to minimize disturbance to soils. Helicopter logging will achieve full suspension. BMP 13.9
Water Quality/Quantity	Class III stream along southwest boundary - moderate potential to transport sediment to Class II stream.	Locate boundary on topographic break above creek. BMP's 12.7, 13.2
Wildlife	Reduction in structural diversity and old-growth habitat.	Implement Level 1 structure retention recommendations through harvest prescription.
Karst	No karst features identified.	
Visuals/Recreation		
Cultural	No cultural resources identified.	Report any finding to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires construction of '89-'94 Rd #2900-100 and construction of proposed Rd #65-77-25 to STA 56+00. Economic feasibility of road construction to this unit marginal. Helicopter logging to existing road to south is recommended. '89-'94 proposed road 2900-100, to south of unit, constructed ~1,000' higher than planned. Tie-in infeasible.	Helicopter yard.
Unit Layout/Administration	Marginal timber. Swing yarding, Poor/no tail trees. No partial suspension.	Helicopter yarding will achieve full suspension.
Opportunities		

BMP 12.7, 13.2, 13.9, 13.12.

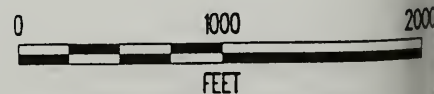
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 531.1-257

Acres: 5.6



- | | | | |
|---|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 531.1-257 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| ★ | Potential Channel Type Change | | |



F-115

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 531.1-257

Harvest Volume : 29.3 MBF/acre

Acres : 5.6

Resource Area	Concerns	Resolution
Silviculture	Red alder, salmonberry, and brush incursions.	Regeneration Harvest Type A. Partial suspension to minimize soil disturbance. PCT and alder control within 20 yrs.
Fisheries	No fisheries stream within unit. However, Class III stream to north and west flows directly into Class I stream. One Class I stream crossing on reconstructed Road 2931 (See Transportation).	Directionally fall trees away from stream to minimize sediment disturbance. BMP 12.7, 13.16, 14.6, 14.17
Soils	No special concerns.	
Water Quality/Quantity	Class III stream on west and north boundary of unit.	Establish boundary south of stream. BMP 13.2
Wildlife	High-use bear area during salmonid runs. Unit is within Trumpeter swan winter habitat. Unit located within an Project-defined medium HCA.	1,000' estuary buffer to minimize disturbance. Estuary buffer will satisfy Level 1 structure retention recommendations. Implement 1/2 mile disturbance buffer if swans are present.
Karst	No karst features observed.	
Visuals/Recreation	Visible from West Coast Waterway in Foreground. Adopted Partial Retention VQO. Partial Retention/Low VAC setting within West Coast Waterway viewshed currently heavily disturbed.	10 acre maximum size. 1,000' estuary buffer. Meets VQO.
Cultural	No cultural resources identified in unit.	Report and findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Road access requires re-opening Rd. 2931 for $\pm 500'$ which includes placing a 50'-60' bridge over Class I stream. (Also see units 531.1-205, 208, 257.) Road 65-77-20 requires 2 Class III stream crossings.	Close road upon completion of harvest.
Unit Layout/Administration	10-acre size limit on clearcuts due to visuals. Swing yarding along with some shovel logging. 1000' estuary buffer at Calder Bay along east side of unit.	
Opportunities		

BMP's 12.7, 13.2, 13.16, 14.6, 14.17.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 532-219

Acres: 38.2



- | | | | |
|---|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 532-219 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| ★ | Potential Channel Type Change | | |



F-117

March 13, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 532-219

Harvest Volume : 12.9 MBF/acre

Acres : 38.2

Resource Area	Concerns	Resolution
Silviculture	Poor site productivity. Poor regeneration. Saturated soil. Heavy mistletoe infection.	Harvest Type F, retain 5-10 trees per acre of yellowcedar for seed source. Site-specific retention areas were identified by field personnel. Select hemlock for harvest to minimize mistletoe infection. PCT within 20 yrs. Protect advance reprod. in marginal portion where practical to do so.
Fisheries	No fish-bearing streams in or near unit.	BMP 12.6, 13.3
Soils	No special concerns.	
Water Quality/Quantity	Class II stream, north central portion of unit surrounded by muskeg, requires TTRA buffer.	Yard away from stream. Flag 100' TTRA buffer around Class II stream that enters unit from North. BMP 12.7, 12.11, 14.10
Wildlife	Initial entry into extensive area of low elevation winter range. Large snags depleted if all five offering units harvested. Sandhill crane nesting habitat. Meets parameters for high quality goshawk habitat. Adjacent past harvest south of unit.	Retain Level 2 structure through the following: Harvest prescription; border muskeg with 200' ITM cut - maintain 12" or less; 100' buffer on Class I stream. Survey unit for goshawks prior to final layout. Close Road 64-78-29 following completion of harvest.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to presence of moderately well-developed karst features (sinkholes, grikes). If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Avoid construction over sinkholes and grikes; avoid yarding over karst features. Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers.
Visuals/Recreation	No concerns	
Cultural	No cultural resources identified.	Notify Forest archaeologist if any findings.
Lands	No concerns.	
Transportation	Requires 15+50 stations of 64-78-29 Rd. and 11+15 stations for 64-78-29.1 Rd.	Close roads after harvest.
Unit Layout/Administration	Hi-lead logging or swing yarding. Split yard on stream.	
Opportunities		

BMP's 12.6, 12.7, 12.11, 13.3, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 532-220

Acres: 21.8



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 532-220 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-119

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 532-220

Harvest Volume : 10.2 MBF/acre

Acres : 21.8

Resource Area	Concerns	Resolution
Silviculture	Low site productivity. Poor regeneration around muskegs. Mistletoe infection within canopy. Saturated soils.	Harvest Type F. Retain 5-10 trees per acre of yellowcedar for seed source. Retain muskeg/low volume areas. Remove higher volume patches. PCT within 20 yrs. Protect advanced reproduction in marginal portion where practical.
Fisheries	No fish-bearing streams in unit.	
Soils	No special concerns.	
Water Quality/Quantity	No special concerns.	BMP 12.11, 14.10
Wildlife	Extensive muskeg habitat potential nesting for the sandhill crane and Vancouver Canada goose use east of unit. Unit is within Trumpeter swan winter habitat. Reduction in structural diversity.	200' ITM along muskeg at east boundary - retain trees 12" dbh and smaller to minimize disturbance. Implement timing restrictions if harvest to occur within 125 meters of active goose areas. Implement 1/2 mile disturbance buffer if swans are present. Level 1 structure retention will be maintained through this ITM and the harvest prescription. Close Road 64-78-29 following completion of harvest.
Karst	No karst features.	
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	
Lands	No concerns	
Transportation	Requires Rd 64-78-29 to be constructed to STA 39+90.	Close road 64-78-29 after harvest.
Unit Layout/Administration	Swing yarding along length of road. Muskeg around boundaries.	Type F within higher volume patches.
Opportunities		

BMP 12.11, 14.10.

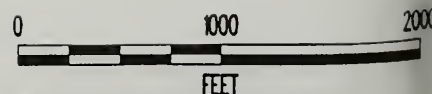
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 532-221

Acres: 21.4



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 532-221 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 532-221

Harvest Volume : 12.7 MBF/acre

Acres : 21.4

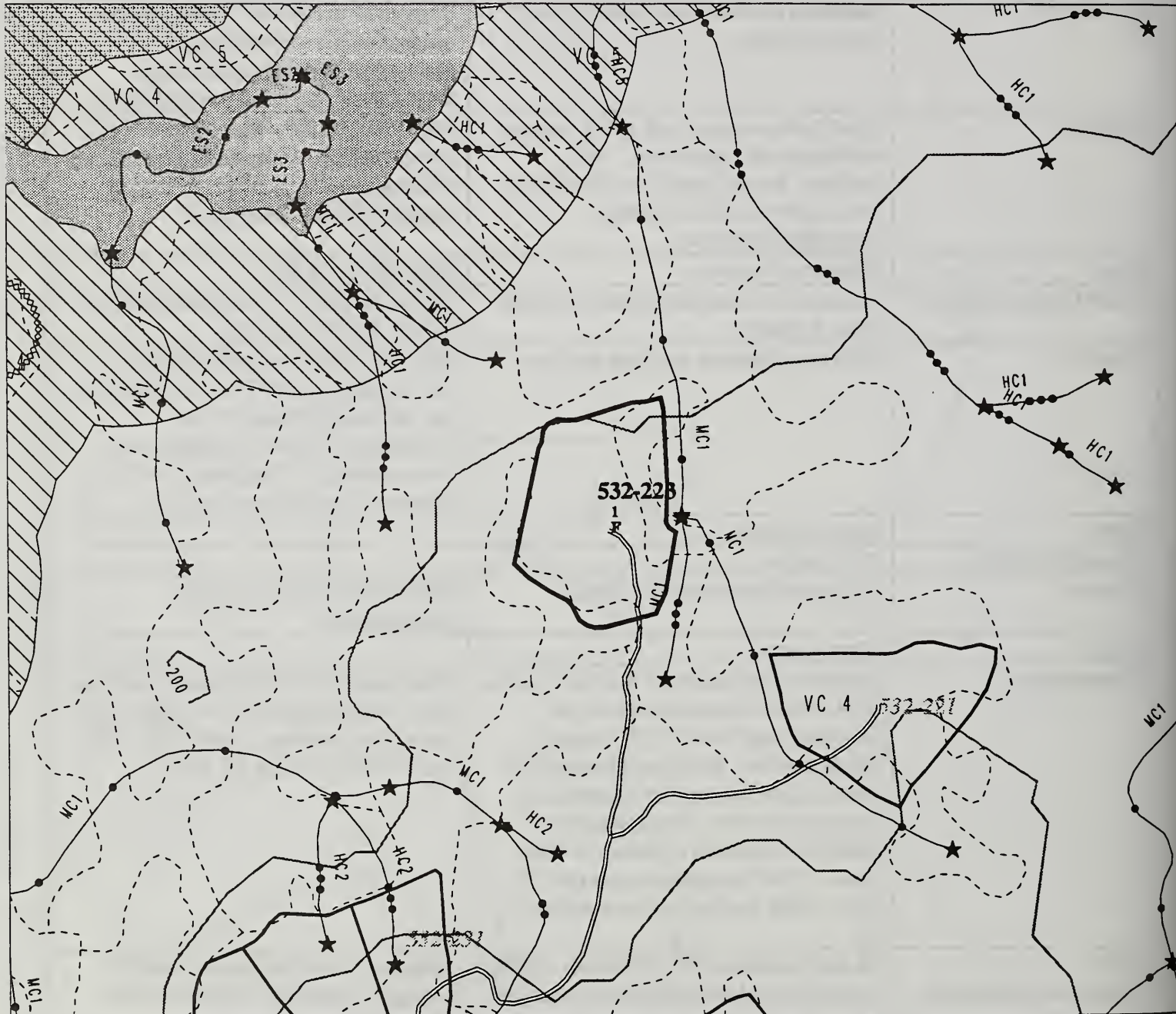
Resource Area	Concerns	Resolution
Silviculture	Retention of cedar component in stand. Saturated soils.	Regeneration Harvest Type A. Protect residual non-merchantable cedar. Emphasize retaining cedar in any intermediate stand treatments planned.
Fisheries	Class I stream runs north along west and southwest unit boundaries. Well-confined, gravel-cobble bed. Numerous trout observed. Low gradient - temperature sensitive.	100' TTRA buffer - plus 50' selective harvest buffer. Apply timing restrictions to Class I & II stream crossings (See Transportation). BMP 13.3
Soils	No special concerns.	BMP 12.11, 14.10
Water Quality/Quantity	Retain shade along temperature sensitive Class I stream.	100' buffer, plus 50' selective harvest buffer. BMP 12.6, 13.3.
Wildlife	High snag densities and high deer use.	Maintain Level 1 structure through harvest prescription, Class I buffers, and by maintaining islands of non-merchantable timber throughout unit where practical. Close Road 64-78-29 following completion of harvest.
Karst	No karst features.	
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires construction of Rd #64-78-29 to STA 95+20 and deconstruction of temporary spur #64-78-29.3 which is 18+50 stations. Unit could be extended over ridge to the north to include good timber in this area. Road would be possible to this area as shown in field notes. Class I crossing on road 64-78-29.3. Class IIa crossing on road 64-78-29.	Close Road 64-78-29 following harvest. Apply timing restrictions to Class I and IIa stream crossings. BMP 12.6, 12.7, 14.6, 14.9, 14.14, 14.16, 14.17
Unit Layout/Administration	Hi-lead yarding or 90'-100' tower. Buffer not established on stream along west side of unit during initial layout.	Boundary was reflagged by fisheries biologist to maintain 100' no-harvest buffer on Class I stream.
Opportunities		

BMP's 12.6, 12.7, 12.11, 13.3, 14.6, 14.9, 14.10, 14.14, 14.16, 14.17

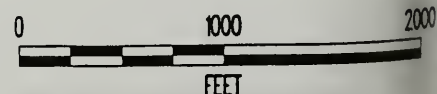
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 532-223

Acres: 25.1



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 532-223 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 532-223

Harvest Volume : 11.0 MBF/acre

Acres : 25.1

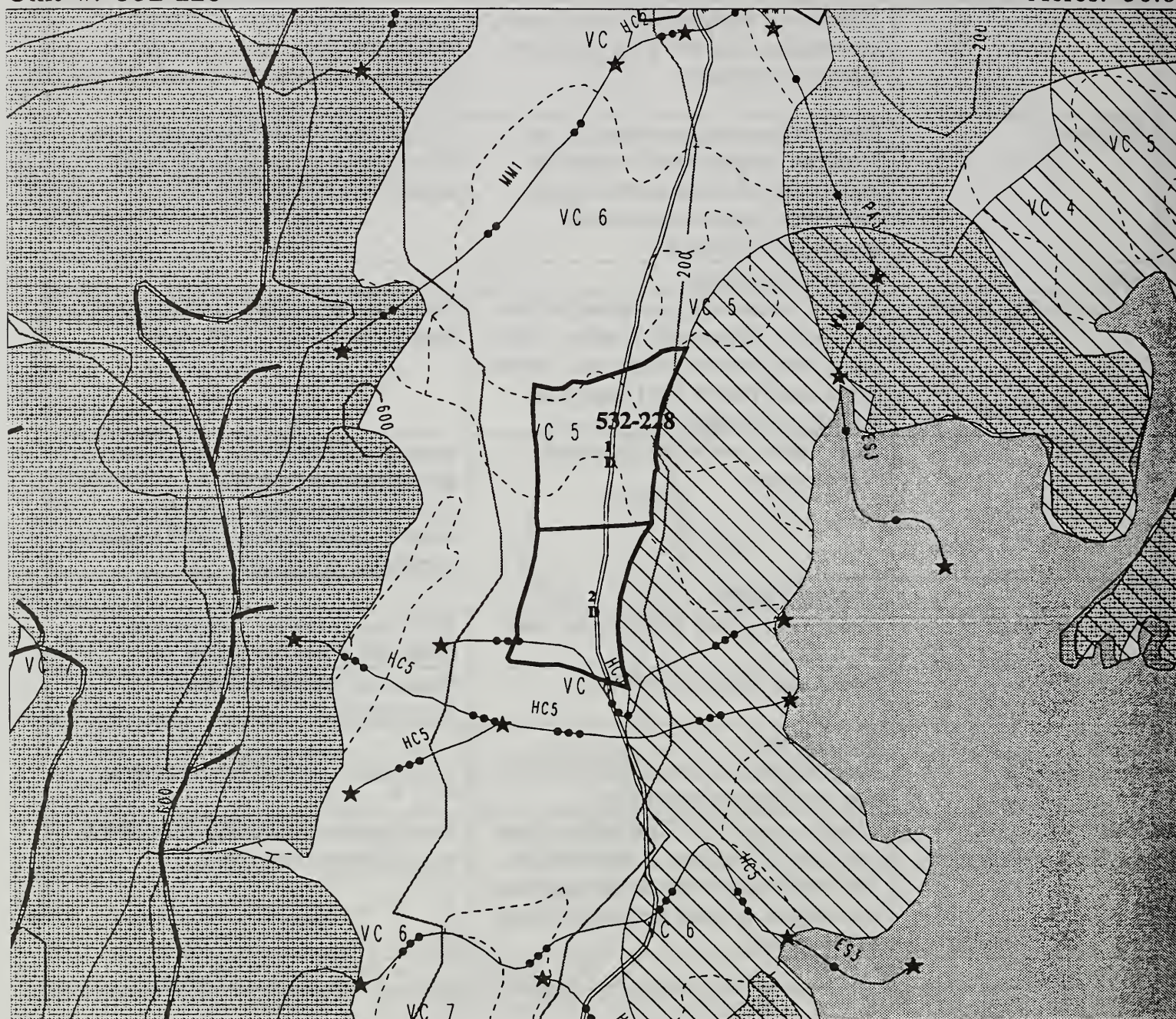
Resource Area	Concerns	Resolution
Silviculture	Yellowcedar regeneration. Heavy brush competition. Salal may pose significant regeneration problem.	Harvest Type F. Select yellowcedar for seed tree source (5 trees per acre minimum). Consider PCT within 20 yrs.
Fisheries	Class I stream along north half of east boundary. Numerous trout observed. Large woody debris important in pool formation. Stream is temperature sensitive - retain shade.	100' no-commercial harvest buffer plus 50' selective harvest buffer along Class I stream. BMP 12.6, 13.3
Soils	No special concerns.	
Water Quality/Quantity	Class III stream along south half of east boundary. Temperature sensitive. Retain shade along west side of channel. Stream flows directly into Class I along south half of East boundary.	50-70' no-harvest buffer along Class III stream. BMP 13.3, 12.11, 14.10
Wildlife	Entry into an area with high natural fragmentation.	Implement Level 1 structure retention through harvest prescription, maintenance of 1000' estuary buffer, and stream buffers. Close Road 65-78-29 following completion of harvest.
Karst	No karst features.	
Visuals/Recreation	Coastal area visible from Sumner Strait.	1000' estuary buffer - flat unit behind buffer will effectively screen.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires construction of Rd. 64-78-29 to end of project at STA 111+10.	Close Road 64-78-29 following harvest.
Unit Layout/Administration	Class I stream 100' TTRA buffer on east boundary. Relocation of landing approx. 150' north will provide partial suspension. Live skyline or swing yarder can be used to harvest unit.	Move landing north as shown on sketch map to improve suspension.
Opportunities		

BMP 12.6, 12.11, 13.3, 14.10.

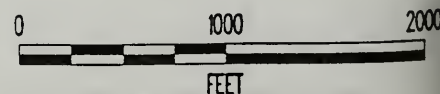
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 532-228

Acres: 30.6



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 532-228 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 532-228

Harvest Volume : 25.3 MBF/acre

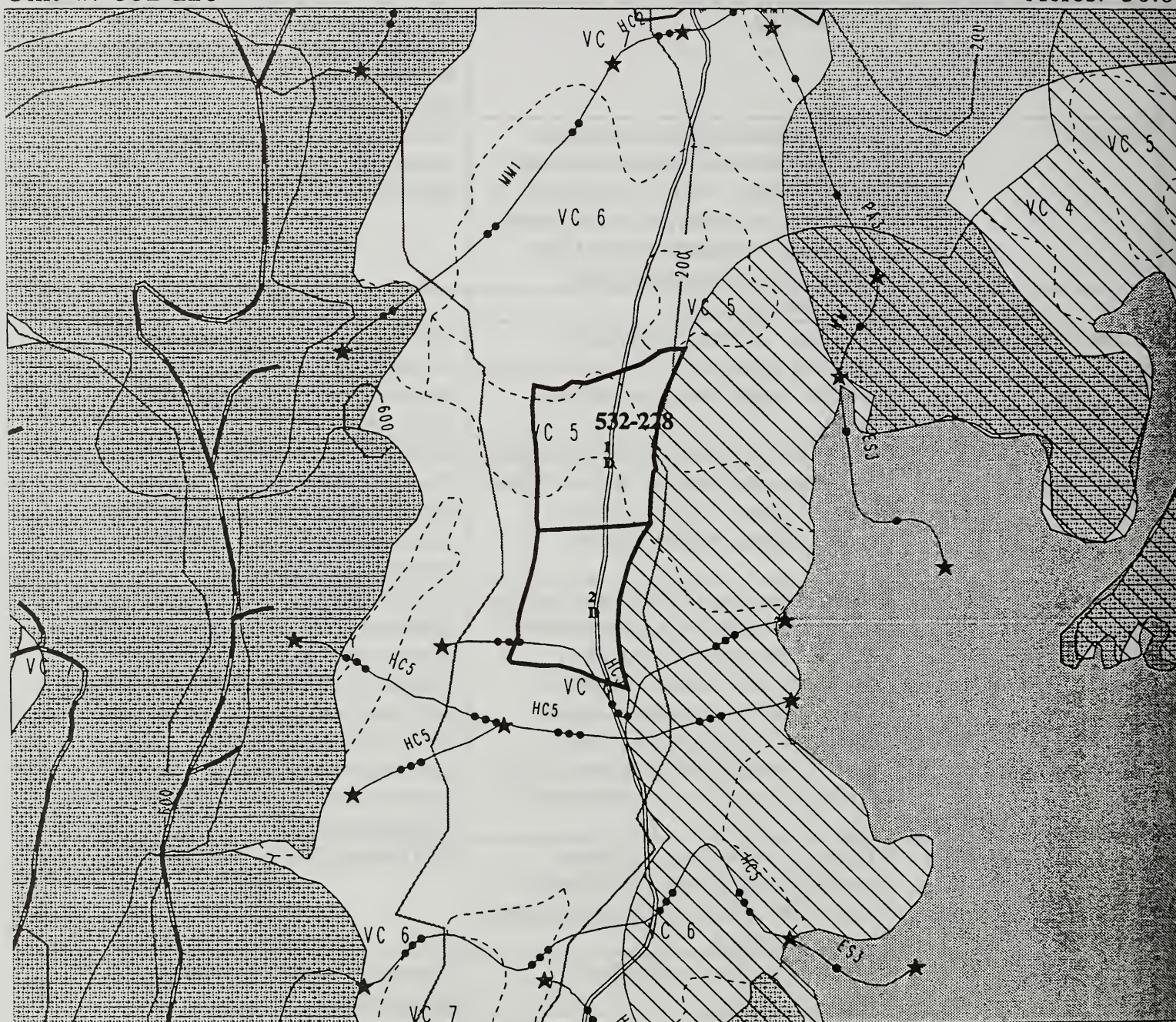
Acres : 30.6

Resource Area	Concerns	Resolution
Silviculture	Overstocking.	Regeneration Harvest Type D; retain buffers as needed around karst features. PCT within 20 yrs; select for spruce during thinning.
Fisheries	Low potential for Class III stream in southeast corner to transport sediment to stream channel ~ 400' east out of unit. 6" active channel width, not incised, stable. Bridge/CMP replacement over Class I stream required on existing road.	See water quality. Apply timing restriction to Class I stream crossing. BMP 14.6, 14.14, 14.16, 14.17
Soils	No special concerns.	
Water Quality/Quantity	Two Class III streams originate in southeast corner and flow east out of unit. 6' active channel width, not incised, stable.	Achieve at least partial suspension in southeast corner. Remove logging-related debris (CT6.51). Apply BMP 13.9, 12.11, 14.10
Wildlife	Black tail deer winter range. High quality cavity excavator habitat. Previous heavy harvest to west. Located within an Project-defined wildlife corridor.	Retain 1000' estuary buffer. Implement Level 1 structure retention through harvest prescription and estuary buffer. Close Road 64-78-23 following completion of harvest.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to density of moderately developed karst features (sinkholes, grikes, solution channels) along road alignment. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Avoid disturbance within and around sinkholes; directional felling away from karst features. Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers. Avoid construction over significant karst features (caves, vertical shafts, sinkholes, or insurgences).
Visuals/Recreation	Upper 1/3 visible from Red Bay in middleground. Adopted Modification VQO. This portion of viewshed presently heavily disturbed.	1000' estuary buffer. Meets VQO.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires construction of 64-77-23 to STA 44+00. Bridge/large CMP needs replacement on 20-810 Rd - Class I stream.	Close road 64-77-23 following harvest.

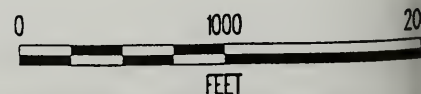
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 532-228

Acres: 30.6



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 532-228 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 532-228 (Continued)

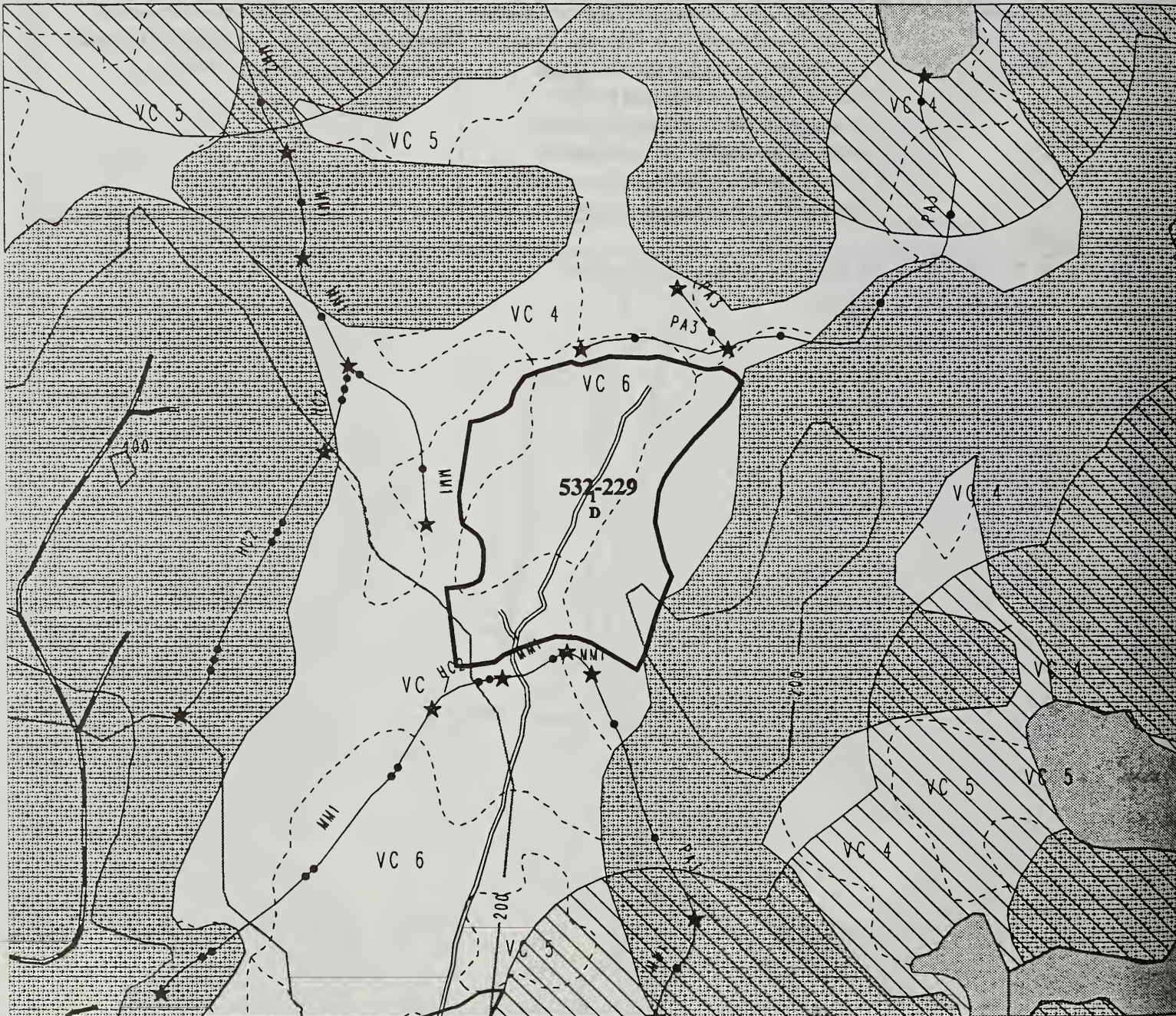
Unit Layout/Administration	Numerous high-quality large spruce requiring large tower w/ slackline rigging to increase piece size and value. Could hi-lead from landings @ 37+00 and 44+00. Tailtrees required in 500' shoreline buffer. Use large tower at optional landing area to get partial suspension in southeast corner of unit. Estuary buffer at east boundary.	East boundary currently flagged at 500' from Red Bay shoreline. Final layout needs to move east boundary to meet the identified 1000' estuary buffer.
Opportunities		

BMP's 12.7, 12.11, 13.9, 14.6, 14.10, 14.14, 14.16, 14.17

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 532-229

Acres: 54.2



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 532-229 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 532-229

Harvest Volume : 22.7 MBF/acre

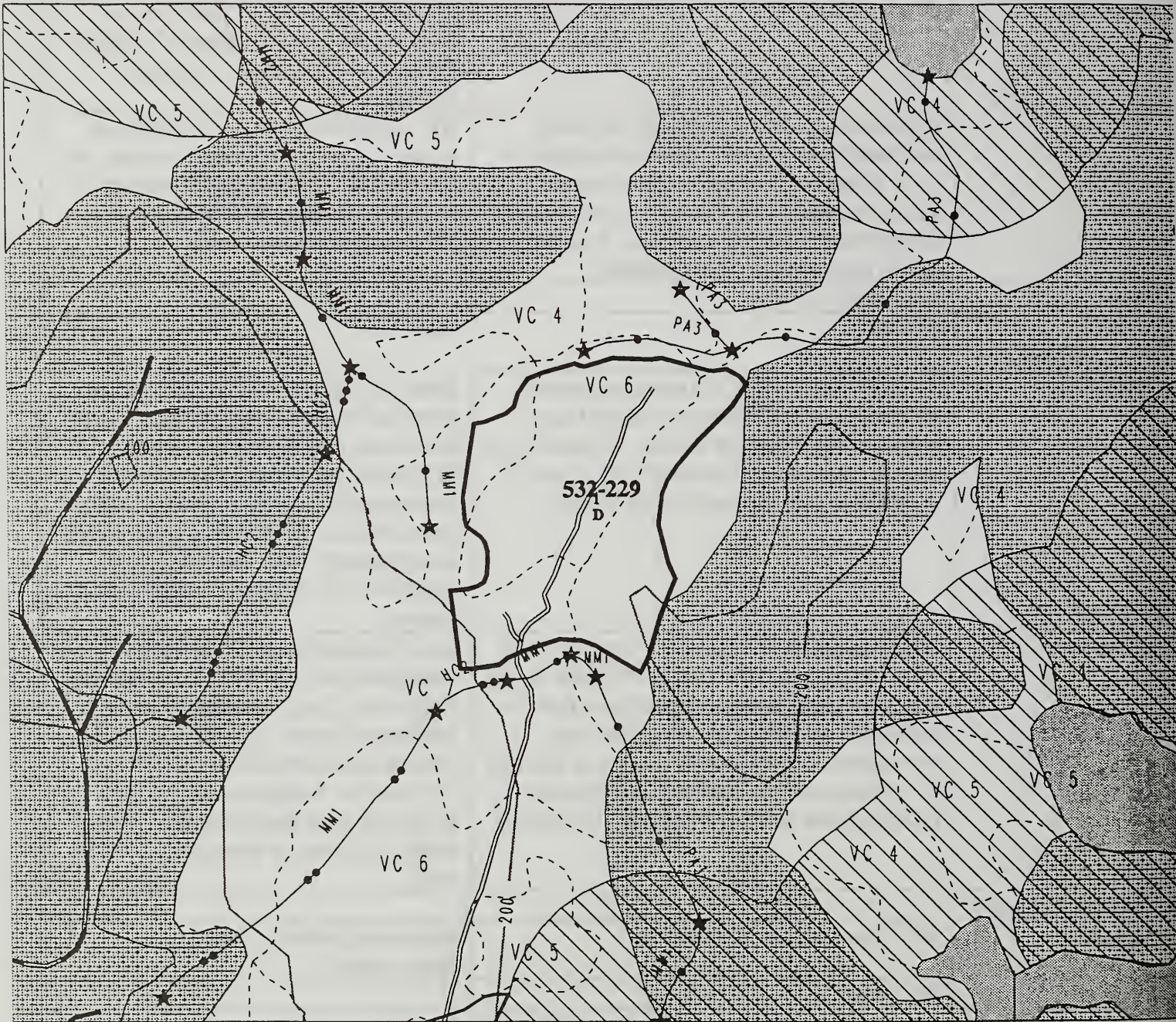
Acres : 54.2

Resource Area	Concerns	Resolution
Silviculture	Overstocking.	Regeneration Harvest Type D; retain buffers around karst features. Consider PCT within 20 yrs, select for spruce during thinning.
Fisheries	Fish-bearing streams along south, west and northwest boundaries are headwater origins of Class I streams. Low gradient and susceptible to increased temperatures. Large woody debris is important in trapping sediment. Class Iia stream crossing (see Transportation).	100' no-commercial harvest buffers on streams to west, northwest, and south unit boundaries. Apply timing restriction to Class Iia crossing. BMP's 12.6, 12.7, 13.3, 14.6, 14.10, 14.16, 14.17
Soils	No special concerns.	
Water Quality/Quantity	See fisheries.	BMP 12.11
Wildlife	Beaver pond complex and associated habitat diversity to west. Deer winter range; high-quality cavity excavator habitat. Extensive past harvest north, west, and east of unit. Located within an Project-defined wildlife corridor.	Maintain an additional 10'-100' variable width buffer along the 100' Class I buffer on the west and northwest boundaries. Implement Level 2 structure retention recommendations through maintenance of these buffers and the 100' stream buffer along the south unit boundary. Close Road 64-77-23 following completion of harvest.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to density of moderately developed karst features (sinkholes, solution channels, grikes) and proximity to Class I and Iia streams. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Avoid construction over sinkholes; directional fell away from karst features. Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers. Realign road to avoid significant karst features (caves, vertical shafts, sinkholes, or insurgences). BMP 14.9
Visuals/Recreation		
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires construction of 64-77-23 and 23.2 to E.O.P.'s. Karst sinkholes from station 8+00 to 10+00 and minor karst over remainder of Road 64-77-23.2. Road 64-77-23 crosses Class Iia stream at station 84+35. Bridge/culvert needs replacement on Road 20-810.	Portions of road may need to be relocated to avoid karst features. Ground is flat; it should not be a problem. Close Road 64-77-23 following completion of harvest. Apply timing restrictions to Class Iia + Class I stream crossings.

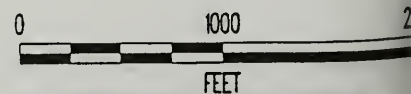
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 532-229

Acres: 54.2



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 532-229 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-131

March 03, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 532-229 (Continued)

Unit Layout/ Administration	Swing yarding recommended; extra spurs from Rd. 64-77-23.2 may be needed to shorten yarding distance and improve lift on this flat unit. Shovel logging may be more economical. Landing @ 89+-- may be replaced by a landing at station 1+50± of road. North half of west boundary laid out with 100' buffer on Class I stream/pond complex. Provide additional buffer as recommended in wildlife section.	During final layout establish the additional variable width buffer (additional 10'-100') on ground or guidelines to implement expanded buffer width during logging.
Opportunities		

BMP's 12.6, 12.7, 12.11, 13.3, 14.6, 14.9, 14.10, 14.16, 14.17.

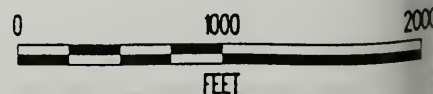
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 532-231

Acres: 42.7



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 532-231 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 532-231

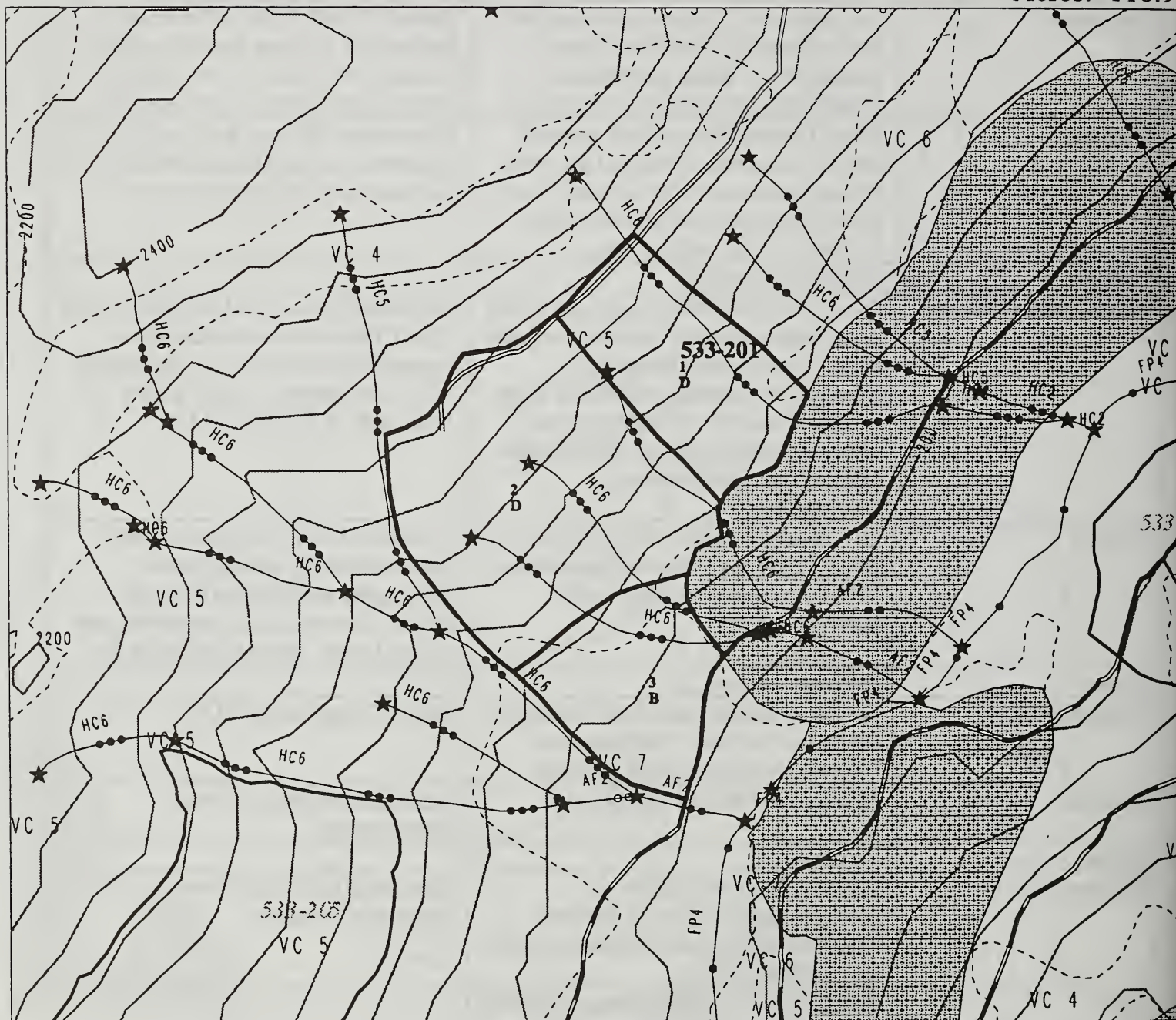
Harvest Volume : 21.4 MBF/acre




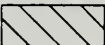






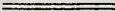





Acres : 42.7

Resource Area	Concerns	Resolution
Silviculture	Saturated soils. Portions of the unit are low productivity. Blowdown in west portion of unit. Brush competition. Maintenance of yellowcedar component.	Harvest Type F. Select yellowcedar for seed trees (5 trees per acre minimum). Consider PCT within 25 yrs. Protect advance reproduction where practical.
Fisheries	Class II stream flows around northeast side of unit - good rearing and spawning habitat; numerous cutthroat trout - Two Class III tributaries affect water quality in Class I stream north of unit.	Unit located 150' from both buffer-required Class I and Class II streams. See water quality. Apply BMP 13.2
Soils	No specific concerns.	
Water Quality/Quantity	Two Class III streams in northeast corner of unit could transport sediment to nearby Class I stream. Also, temperature sensitive - some shade provided by large woody debris over creek. May dry up during hottest periods (so not significant influence on downstream water temperature).	Directional fell and yard away from these Class III stream channels, and leave nonmerchantable trees (<10' dbh) within 50' of these streams. Apply BMP's 12.7, 13.2, 13.3, 12.11, 13.16, 14.10
Wildlife	Depletion of snag and structural diversity given extensive past harvest to southwest. Meets parameters for high quality goshawk habitat.	Implement Level 2 structure retention recommendations through harvest prescription and retention of stream buffers. Survey unit for goshawks prior to final layout. Close Road 64-78-29.
Karst	No karst features.	
Visual/Recreation	Visible in middleground from Cruiseship Route and Red Bay. This portion of viewshed currently heavily disturbed.	Harvest Type F meets VQO.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires Road 64-78-29 to be constructed to STA 74+15 and Spur Road 64-78-29.2 to be constructed which is 11+10 stations.	Close Road 64-78-29 following completion of harvest.
Unit Layout/Administration	Running skyline, split yarding around two streams required. A lot of blowdown in unit on west side of unit. History of blowdown throughout unit.	
Opportunities		

BMP's 12.7, 12.11, 13.2, 13.3, 13.16, 14.10.

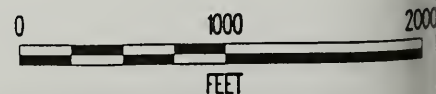
Acres: 118.9



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|---|-------------------------------|---|----------------------|
|  | Project Boundary |  | Water |
|  | Unit 533-201 |  | Beach Fringe/Estuary |
|  | Other Units |  | Second Growth |
|  | Timber Type Boundary |  | 200 ft contours |
|  | Eagle Nest Buffer (330ft) | | |
|  | Existing Roads | | |
|  | Proposed Roads | | |
|  | Class I Stream | | |
|  | Class IIa Stream | | |
|  | Class IIb Stream | | |
|  | Class III Stream | | |
|  | Potential Channel Type Change | | |



NORTH



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 533-201

Harvest Volume : 27.8 MBF/acre

Acres : 118.9

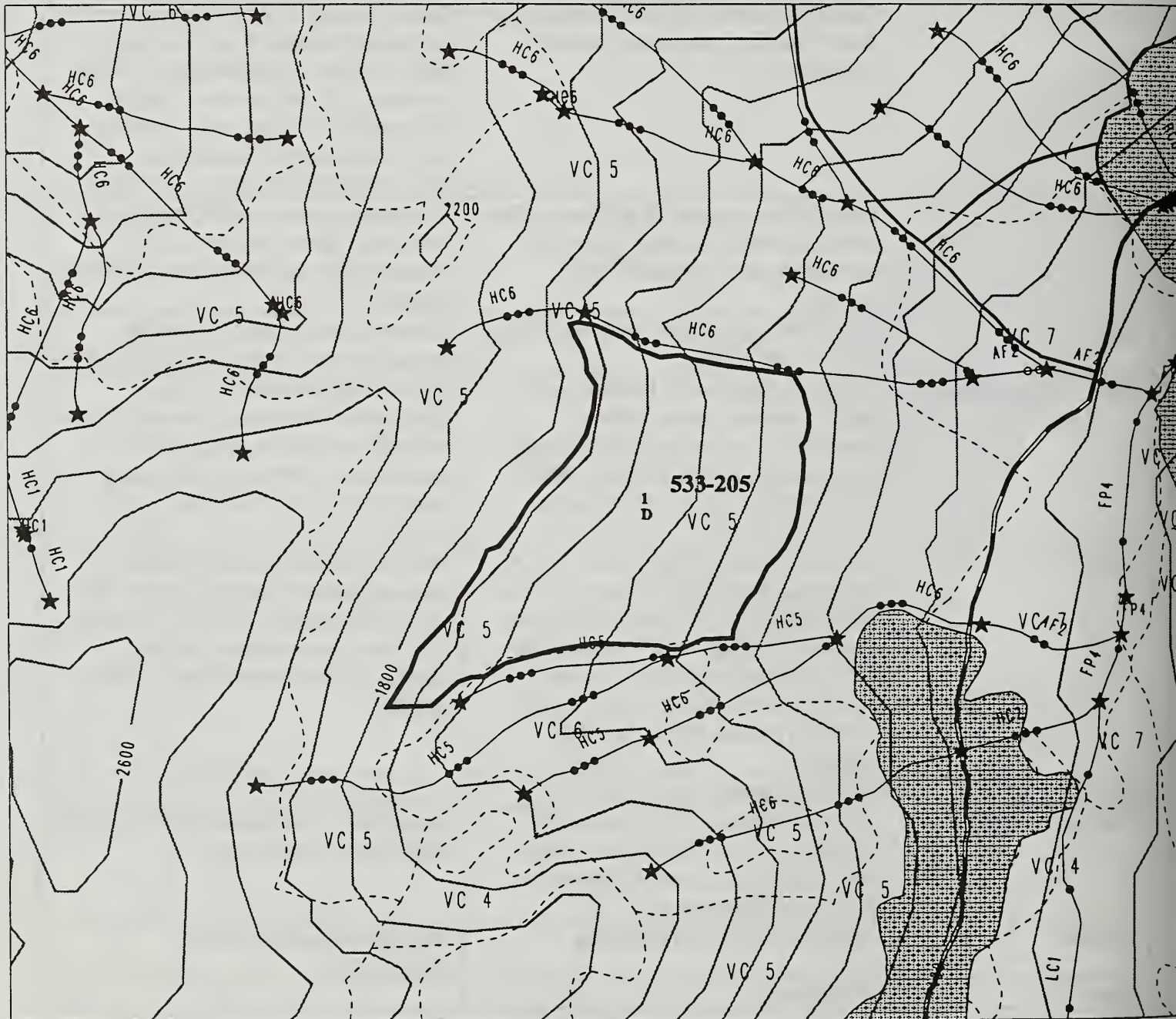
Resource Area	Concerns	Resolution
Silviculture	Central portion of unit has slopes greater than 80 percent. Mistletoe present in overstory.	Regen. Harvest Type D (settings 1 & 2) and Regen. Harvest Type B (setting 3). Select yellowcedar for retention. Retain live trees <12" dbh on slopes >80 %. Site-specific retention areas within the unit, identified by field personnel. Recommend PCT at approx. 20 years.
Fisheries	Potential for transport of sediment to fish-bearing streams. Harvest within HGC buffer will exceed threshold of 25 percent.	(See soils and water quality/quantity) Provide no harvest buffers on HGC streams within and adjacent to unit where feasible.
Soils	High MMI soils; healed over debris slides in north half of unit.	Achieve at least partial suspension throughout unit. Apply BMP's 13.9, 13.5
Water Quality/Quantity	Deeply incised Class III stream along south boundary - active bedload movement. Four other stable Class III streams in and adjacent to unit - these extend only up to ~1,000' elevation.	Locate south unit boundary on topographic break above channel. Do not yard logs up channel. Achieve full suspension if yarding across channel. Apply BMP's 12.7, 13.2, 13.5, 13.9, 14.10
Wildlife	Cumulative effects disturbance of watershed. Alteration of contiguous tract of old growth. Maintenance of snags of particular concern due to adjacent past harvest. Meets parameters for high quality goshawk habitat. Unit located within an Project-defined wildlife corridor.	Maintain Level 2 structure retention through diameter limited cut (>20" dbh) along unit boundary (100' wide). Retain leave-tree areas as shown on map. Survey unit for goshawks prior to final layout.
Karst	No karst features.	
Visuals/Recreation	Adopted maximum modification VQO. Visible from Red Lake (upper portion only), Red Bay, Cruiseship Route, and Rd. 20 in middleground.	Meets VQO. Leave-tree area along upper edge softens visual effects.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Full bench construction required between STA 61+00 and 90+45, some rock blasting (approx. 600 feet) will also be necessary in this segment of road. See Road 64-77-34 file.	Close road upon completion of harvest.
Unit Layout/Administration	Limited landing possibilities on upper road. Long yarding distances. Need partial suspension overall and full suspension over 3 v-notches. There is a blind lead area along V-notch, southwest boundary. Leave-tree islands.	Use large skyline machine, drop line carriage. Tail holds across Big Creek on Rd. 2080. Blind lead area left as leave-tree area.
Opportunities		

BMP's 12.7, 13.2, 13.5, 13.9, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 533-205

Acres: 71.7



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|---|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 533-205 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| ★ | Potential Channel Type Change | | |

F-137

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 533-205

Harvest Volume : 23.9 MBF/acre

Acres : 71.7

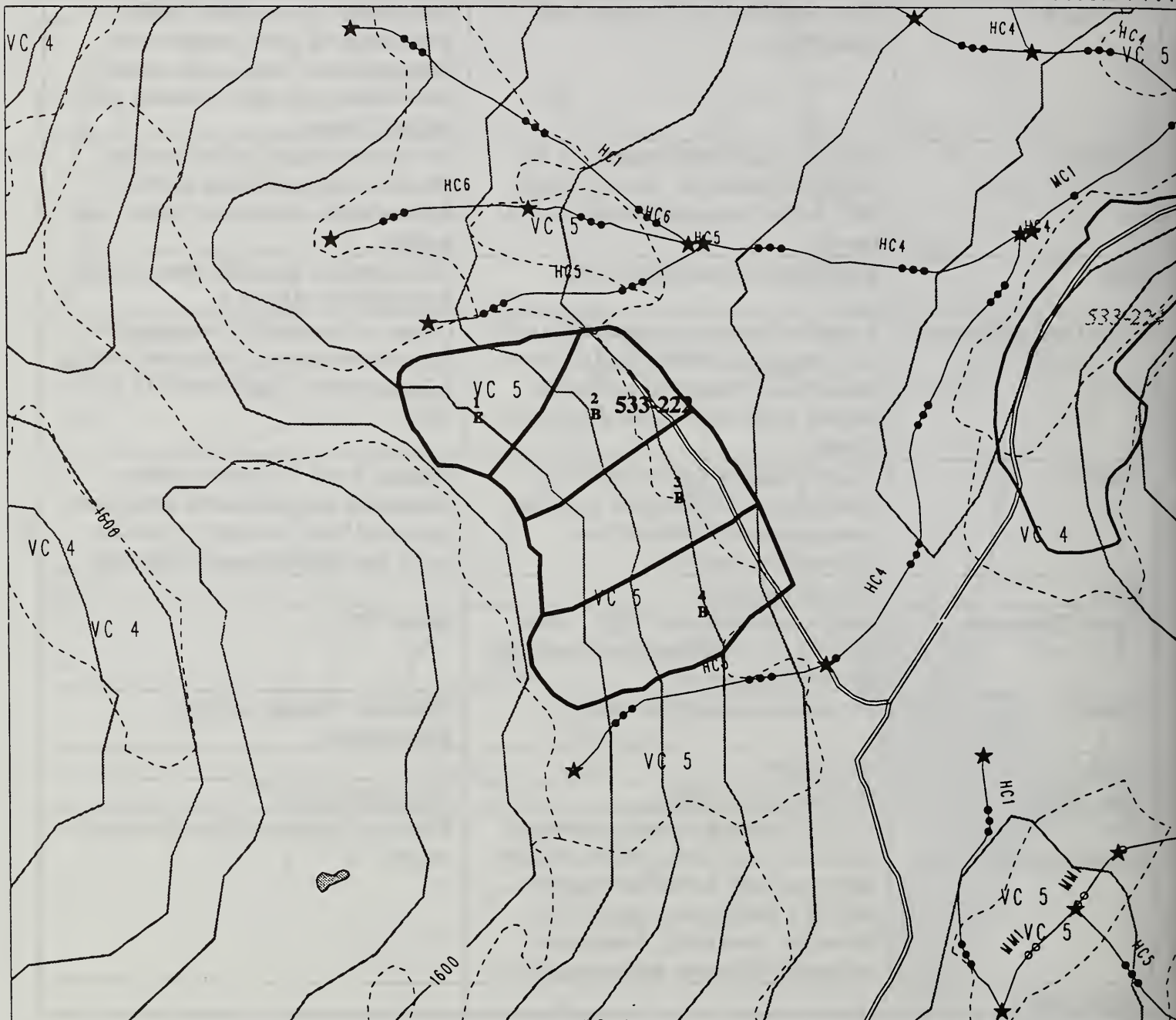
Resource Area	Concerns	Resolution
Silviculture	Slope instability, rocky soils. Brush competition.	Regeneration Harvest Type D with maintenance of unmerchantable trees throughout unit. Site specific retention areas identified by field personnel. PCT within 20 years.
Fisheries	Potential for sediment transport to fish-bearing stream below. Harvest within HGC buffer will exceed threshold of 25 percent.	See soils and water quality/quantity. Provide no harvest buffers on HGC streams within and adjacent to unit where feasible.
Soils	High MMI soils throughout unit.	Full suspension from helicopter yarding. Apply BMP's 13.9, 13.5
Water Quality/Quantity	V-notch channels along north and south unit boundary - unstable, high sediment production. Several small, Class III streams within unit - do not drag logs up channel.	Locate unit boundaries on topographic break above streams. Helicopter yarding, full suspension. Apply BMP's 13.2, 12.7, 13.5
Wildlife	Fragmentation of the remaining last contiguous tract of timber at Big Creek. Loss of structural diversity from landscape perspective.	Maintain Level 1 structure through retention of large corridor of timber both above and below unit and by retaining two 5-acre retention areas within unit.
Karst	No karst resources.	
Visuals/Recreation	Maximum modification VQO. Visible from Rd. 20, Cruiseship Route, and Red Bay in middleground.	Meets VQO.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Road access infeasible.	Helicopter yard.
Unit Layout/Administration	Left 500' between southeast corner and existing clearcut on Rd. 20805. Placed lower boundary at 800-foot contour, leaving a feasible cable logging unit below for future entry. Road access unfeasible; helicopter yarding required.	Retain two patches within unit as noted on map.
Opportunities		

BMP's 12.7, 13.2, 13.5, 13.9.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 533-222

Acres: 77.4



- | | | | |
|---|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 533-222 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| ★ | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 533-222

Harvest Volume : 23.7 MBF/acre

Acres : 77.4

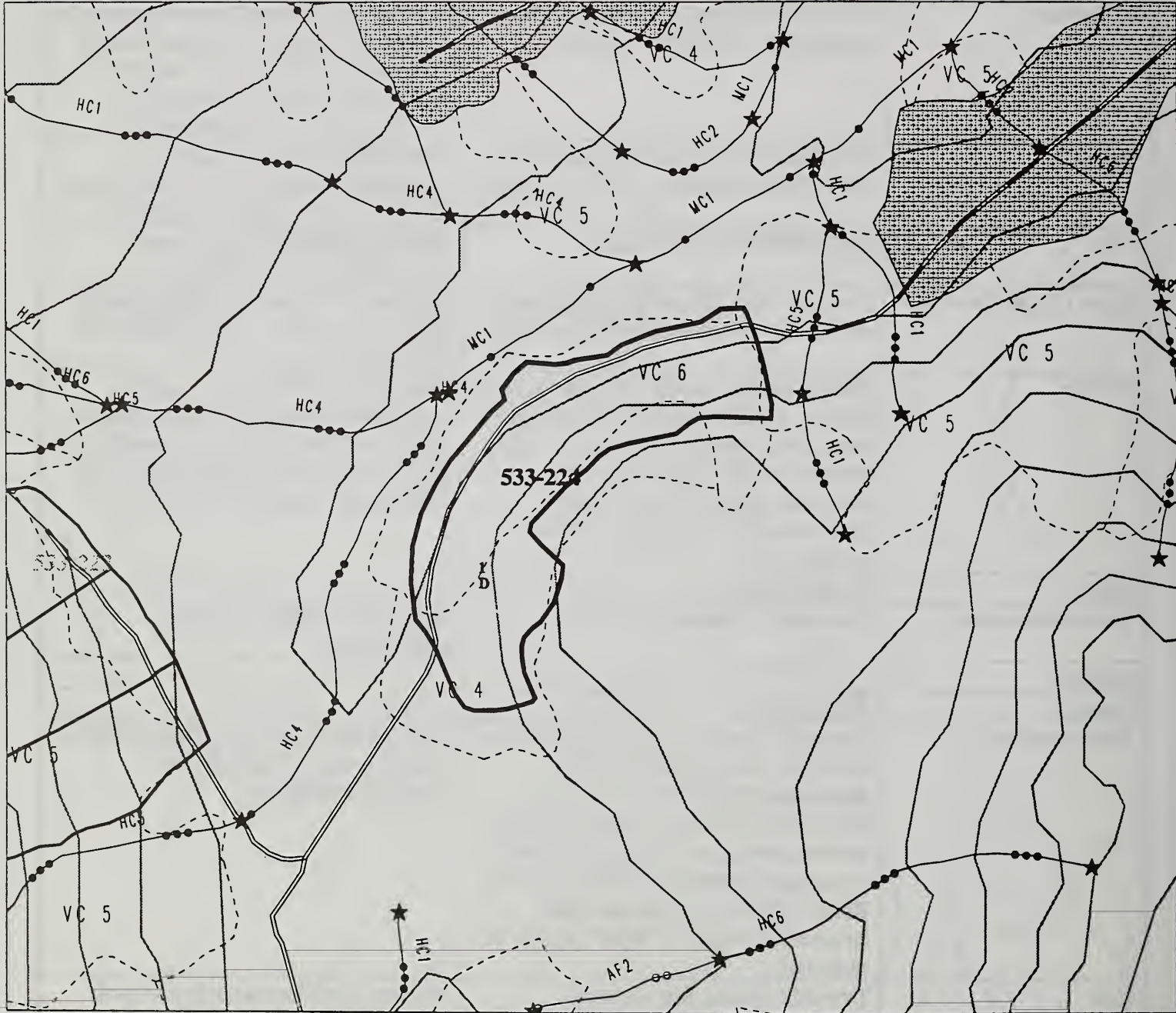
Resource Area	Concerns	Resolution
Silviculture	Shallow soils, slope instability. Brush competition. Windthrow potential.	Regeneration Harvest Type B (settings 2-4). Harvest Type E - overstory removal with retention of trees <15" (setting 1). Move west boundary 150' east for wildlife corridor. PCT within 20 yrs.
Fisheries	V-notch along north boundary flows into Class I stream, approx. 1200' downslope.	North unit boundary located on topographic break above V-notch stream. BMP 12.7, 13.2, 13.5, 14.16, 14.17
Soils	High MMI soils, shallow soils.	Partial suspension throughout unit. Apply BMP's 12.7, 13.5, 13.9
Water Quality/Quantity	V-notch (Class III) along north boundary shows signs of active bedload movement.	Put north unit boundary on topographic break above stream. Apply BMP's 12.7, 12.11, 13.2, 14.10
Wildlife	Harvest would bisect patch of old-growth habitat. Reduction in structural diversity, particularly due to natural fragmentation adjacent to unit. Roding into a previously unroaded area. Meets parameters for high quality goshawk habitat.	Maintain Level 2 structure and old-growth travel corridor through retention of 150'-wide area along west boundary of unit. Survey unit for goshawks prior to final layout. Close Road 65-77-25.
Karst	No karst features.	
Visuals/Recreation	No cultural resources identified.	Report any findings to Forest archaeologist.
Cultural		
Lands	No concerns.	
Transportation	Originally designed to haul south on Road 65-77-25. Road tie-in to south determined to be infeasible and unit 531.1-242 (to south) has been redesigned as a helicopter unit. Redesign to haul out to north on Road 65-77-25 (ties in to Road 65-78-31). Numerous small streams will require culverts up to 36" in diameter.	Install culverts using appropriate BMP's. Close Road 65-77-25 following completion of harvest.
Unit Layout/Administration	Downhill yarding with slackline. Northwest part of unit boundary was flagged on north side of V-notch, stream protection requires full suspension over V-notch.	Relocate northwest boundary to south side of V-notch during final layout. Heli-log setting #1. Apply BMP's 13.2 and 13.9
Opportunities		

BMP's 12.7, 12.11, 13.2, 13.5, 13.9, 14.10, 14.16, 14.17.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 533-224

Acres: 52.1



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 533-224 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 533-224

Harvest Volume : 20.3 MBF/acre

Acres : 52.1

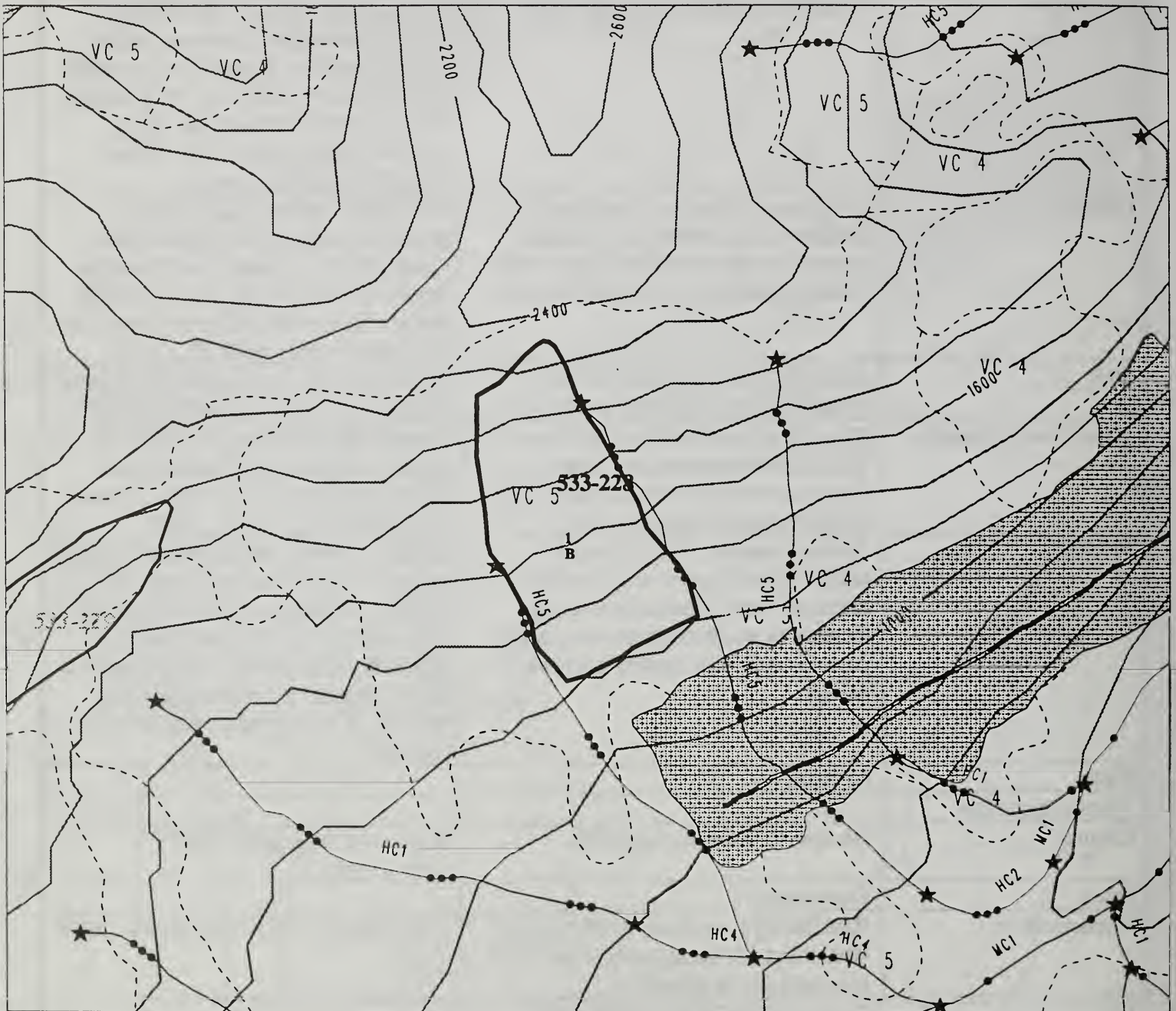
Resource Area	Concerns	Resolution
Silviculture	Windthrow potential. Unstable soils.	Regeneration Harvest Type D; utilize ITM areas along unit boundary, along with the specified retention area to retain 15% of the unit basal area. PCT within 20 yrs. should be considered. Site-specific retention area within the unit identified by field personnel.
Fisheries	Class I and III streams along west boundary - high sediment production; prevent increased sediment to fish stream. Retain windfirm trees for bank stability.	100' TTRA harvest buffer plus 50' selective harvest buffer required along Class I stream. Retain unmerchantable trees (<10" dbh) within 50' of Class III stream. Directional fell away from Class III stream. Apply BMP 12.7, 13.16.
Soils	High MMI, shallow soils in central portion of unit where slopes >60%.	Achieve at least partial suspension where slopes >60%. Apply BMP's 13.9, 13.5
Water Quality/Quantity	Class III stream along west boundary - high sediment production; prevent increased sediment to fish stream. Retain windfirm trees for bank stability.	Directionally fell away from Class III stream. Retain unmerchantable trees (<10" dbh) within 50' of Class III stream. Apply BMP 12.7, 12.11, 14.10
Wildlife	Further reduction of large-diameter mature timber in previously harvested drainage. Road construction would increase access through the area. Meets parameters for high quality goshawk habitat.	Maintain vertical corridor inclusion (see map). Level 2 structure through this corridor, retention of timber at base and crown of bluffs on southern portion of unit, and stream buffers. Survey unit for goshawks prior to final layout. Close road 65-78-31 following completion of harvest.
Karst	No karst.	
Visuals/Recreation		
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Haul out north on Road 65-78-31 to the 2080 Road. Route to south on 65-77-25 determined to be infeasible.	Close Road 65-78-31 after harvest. BMP 12.11
Unit Layout/Administration	Swing yarding, 95% downhill. 100' TTRA buffer along Class I stream on section of north boundary. Blowdown area in southeast corner above unit	
Opportunities		

BMP's 12.7, 12.11, 13.5, 13.9, 13.16, 14.10.

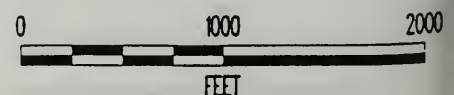
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 533-228

Acres: 39.3



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 533-228 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 533-228

Harvest Volume : 26.2 MBF/acre

Acres : 39.3

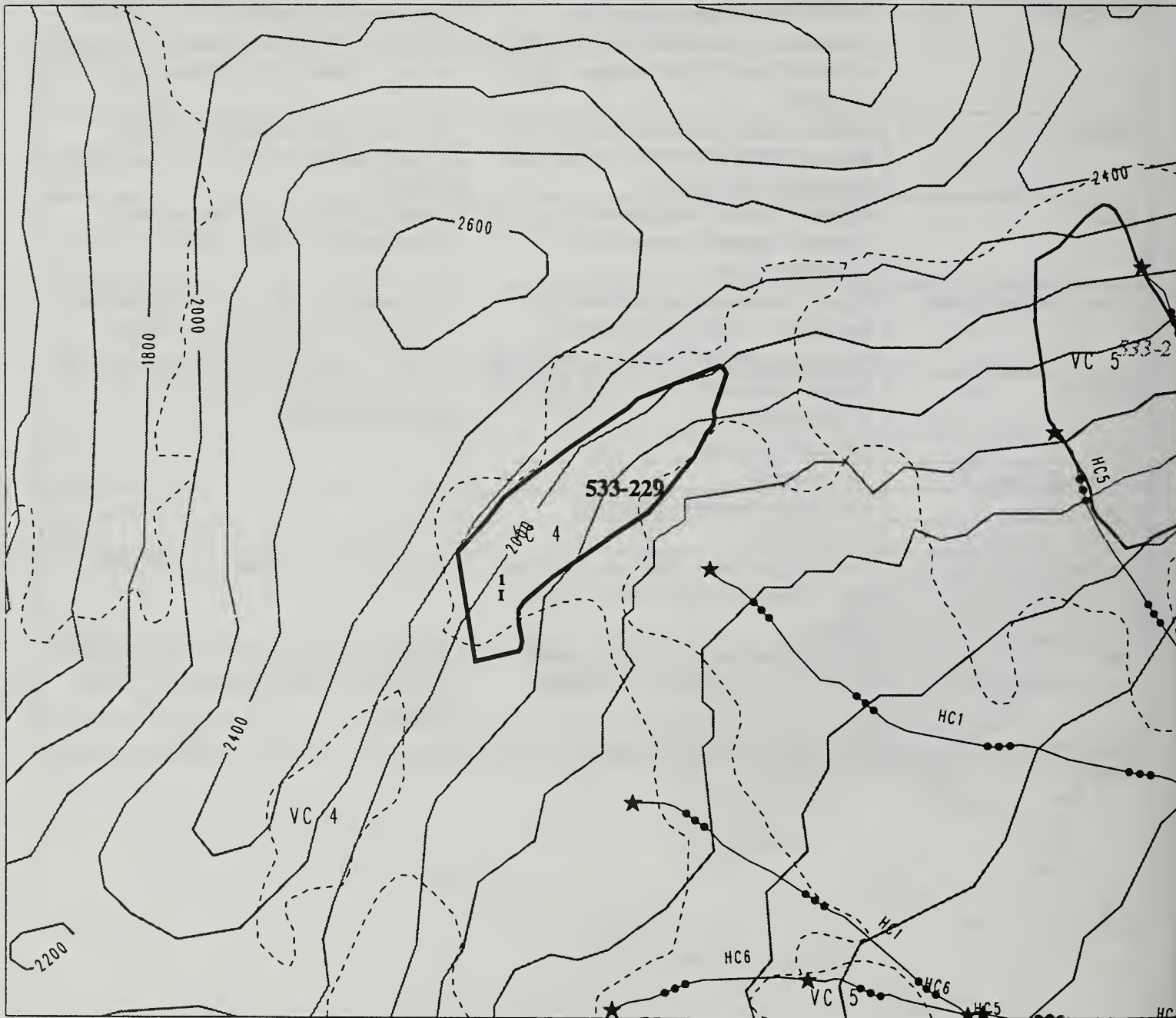
Resource Area	Concerns	Resolution
Silviculture	Hemlock overstocking at lower elevations. Protection of soil and advance reproduction at high elevations. Slope instability.	Regeneration Harvest Type B. Partial suspension at high elevations and on steep slopes. Consider PCT within 20 yrs.
Fisheries	No fish-bearing streams in or near unit. Harvest within HGC buffer will exceed threshold of 25 percent.	Provide no harvest buffers on HGC streams within and adjacent to unit where feasible.
Soils	High MMI soils. Long downhill yarding distance - potential to concentrate subsurface flows.	Achieve at least partial suspension throughout unit. Apply BMPs 13.5, 13.9
Water Quality/Quantity	Class III streams along east and west boundaries - stable; good sediment trapping as gradient decreases downslope.	Use streams as east and west boundaries. Yard away from streams and follow CT6.51. Apply BMPs 12.7, 13.2, 13.16
Wildlife	Further reduction of Big Creek drainage forested habitat	Level 2 structure retention through harvest prescription.
Karst	No karst features.	
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	
Lands	No concerns.	
Transportation	59 stations of road; does not access any units beyond this one due to V-notch streams.	Helicopter log to existing Rd. 20-805.
Unit Layout/Administration	Conventional logging systems cannot provide required partial suspension.	Economical helicopter yarding is possible due to short yarding distance to 20-805 Road.
Opportunities	Helicopter log unit.	

BMP's 12.7, 13.2, 13.5, 13.9, 13.16

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 533-229

Acres: 26.6



- Project Boundary
- Unit 533-229
- Other Units
- Timber Type Boundary
- Eagle Nest Buffer (330ft)
- Existing Roads
- Proposed Roads
- Class I Stream
- Class IIa Stream
- Class IIb Stream
- Class III Stream

- Water
- Beach Fringe/Estuary
- Second Growth
- 200 ft contours

★ Potential Channel Type Change



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 533-229

Harvest Volume : 6.5 MBF/acre

Acres : 26.6

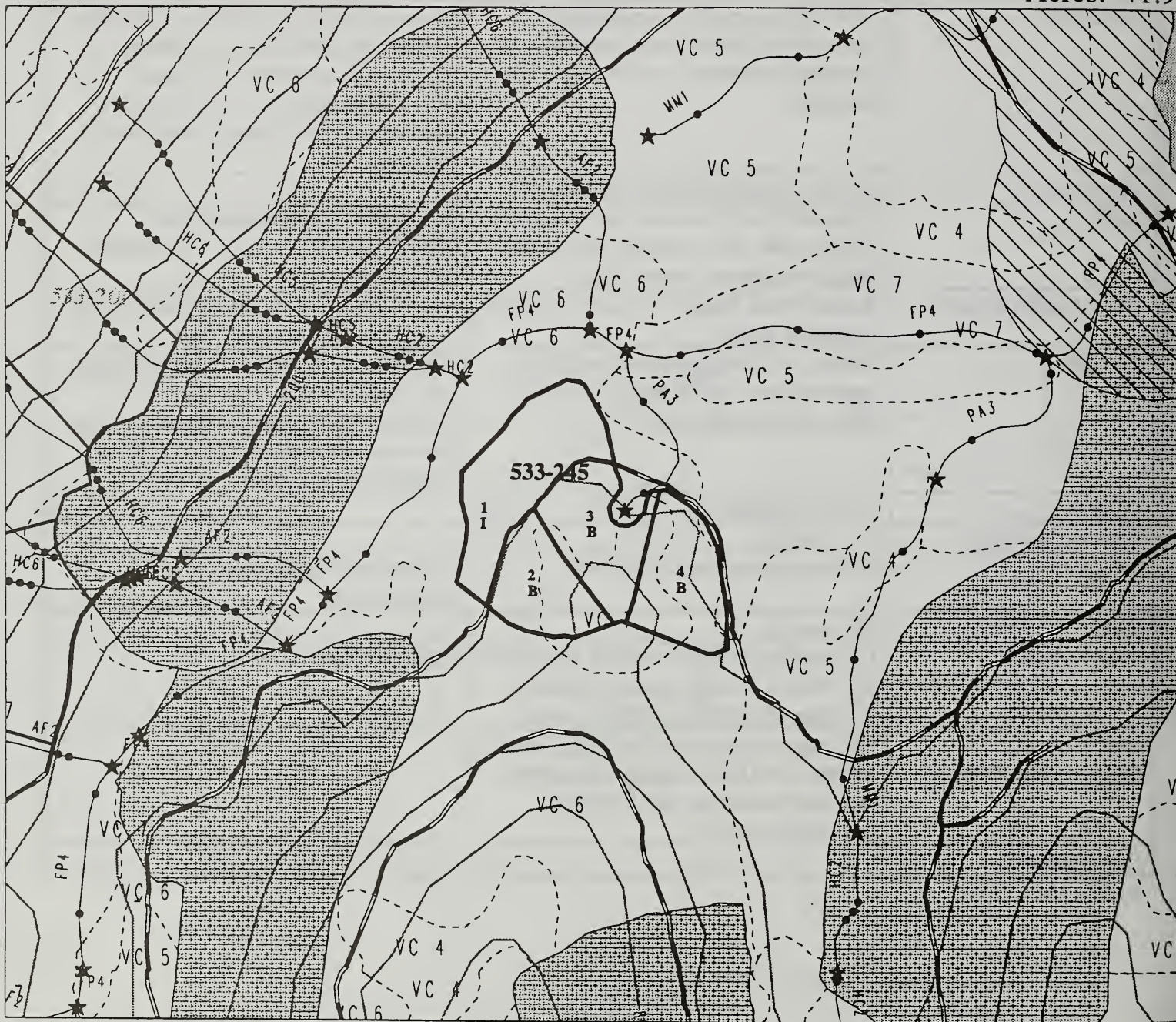
Resource Area	Concerns	Resolution
Silviculture	1670'-1900' elevation - regeneration concerns; high frost heave potential. Damage to advanced reproduction. Slope instability.	Harvest Type I; individual tree selection. Retain 50% basal area, in all diameter classes, to retain thermal radiation and provide for adequate regeneration. Heli-logging to protect advance reproduction and soil.
Fisheries	No fish-bearing streams in or near unit.	
Soils	High MMI soils; areas of very shallow organic soils over bedrock. One small slump near bottom center of unit.	Full suspension to minimize soil disturbance (helicopter). Apply BMPs 13.5, 13.9
Water Quality/Quantity	Several small channels <2' active channel width; not incised.	Remove logging-related debris (CT6.51).
Wildlife	Alteration of isolated forest tract among open and semi-closed muskeg. High value deer summer range.	Retain Level 1 structure through harvest prescription and by maintaining a minimum of 200' buffer adjacent to open meadows southeast of unit. Retain all snags where practical.
Karst	No karst features.	
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Log landing location would be the end of Rd. 20-805. A large landing capable of handling 12 MBF/hr will be required.	Helicopter yard.
Unit Layout/Administration	Helicopter logging required. High level of defect will make logging cost extreme. Required helicopter with 8,000 lbs. payload capacity.	
Opportunities		

BMP's 13.5, 13.9.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 533-245

Acres: 41.9



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 533-245 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-147

March 03, 2005

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 533-245

Harvest Volume : 27.6 MBF/acre

Acres : 41.9

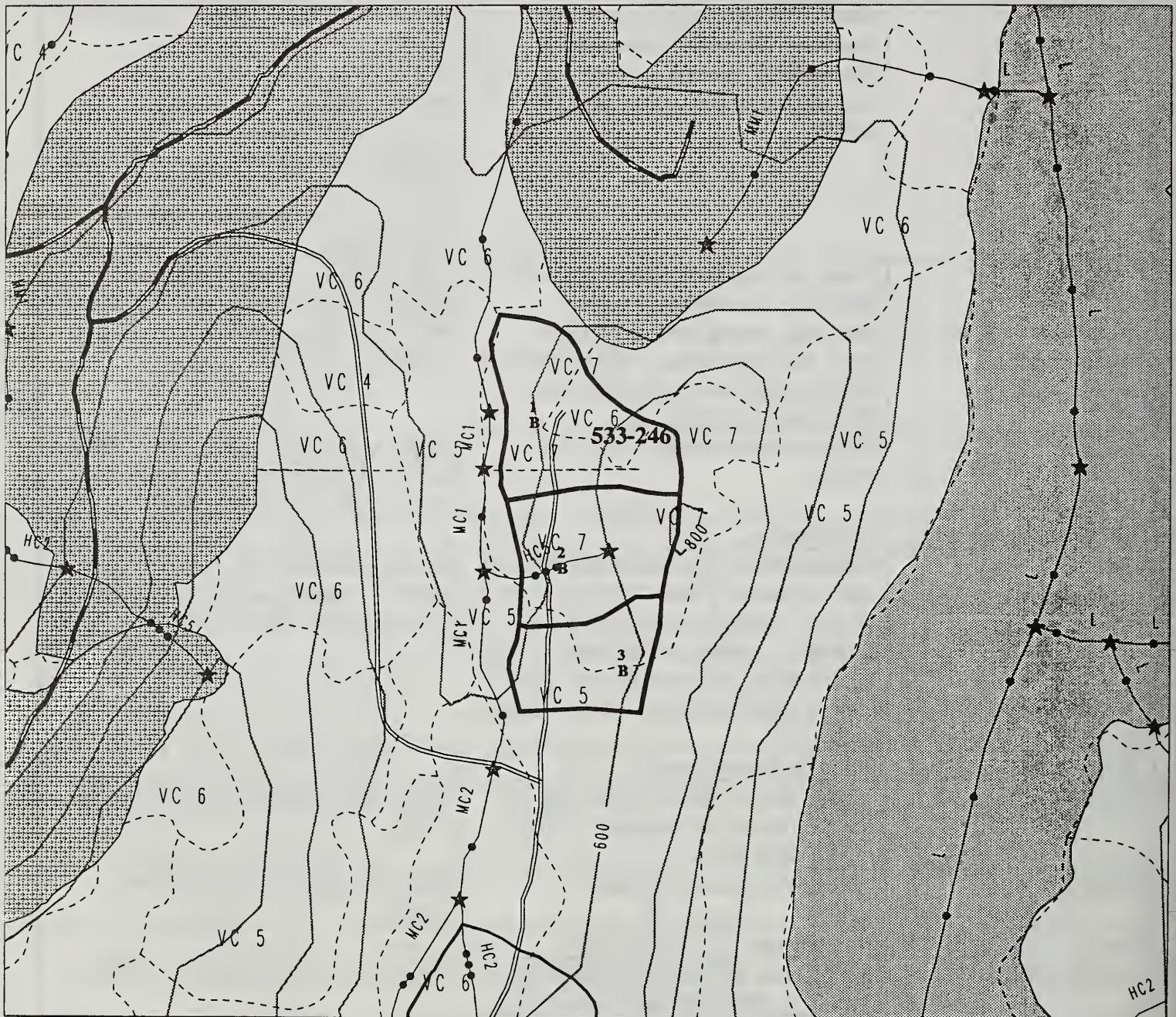
Resource Area	Concerns	Resolution
Silviculture	Harvest on riparian soils along west boundary. Windthrow potential. Salmonberry incursions. Low productivity in swampy area in NE corner.	Harvest Type I in setting 1; retain 40% of basal area in all diameter classes. Harvest Type B with 150' green-tree retention boundary in remaining 3 settings. Select cedar for green-tree retention (yellowcedar in upper portion of unit). Adjust west unit boundary to exclude harvest on riparian soils. PCT within 20 yrs.
Fisheries	Class I stream (Big Creek) along north boundary - meandering; excellent spawning, rearing holding for pinks, coho, and chum salmon. Class I tributary flows through unit into beaver pond. Very small, but many fish.	100' required buffer plus riparian soil buffer along Big Creek. 100' required no-harvest buffer along Class I tributary stream. Apply BMP 12.6
Soils	Riparian soils associated with Class I stream.	Adjust west unit boundary approx. 200' to exclude harvest on riparian soils. Apply BMPs 12.6, 13.2, 14.10
Water Quality/Quantity	See fisheries.	
Wildlife	Habitat diversity associated with riparian zone surrounding beaver ponds in north of unit. Additional harvest in an area already fragmented by past harvest. High quality cavity excavator habitat. Unit located within an Project-defined wildlife corridor.	See fisheries above. Level 2 structure retention through harvest prescriptions and required stream buffers.
Karst	No karst features in unit.	
Visuals/Recreation	Visible from Cruiseship Route, Rd. 20, and Red Bay in middleground. Adopted modification VQO.	Meets VQO through Harvest Type I in Setting 1.
Cultural	No cultural resources identified.	Notify Forest archaeologist if any findings.
Lands	No concerns.	
Transportation	3 short spurs off Rd. 2080 required for a total of 3 stations of road construction.	Close road upon completion of harvest.
Unit Layout/Administration	Downhill and uphill yarding from 3 landings using a running skyline system. Unit laid out 100' from Big Creek on riparian soils.	Adjust west unit boundary to approximately 200' from Big Creek to exclude harvest on riparian soils.
Opportunities		



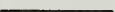




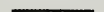
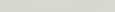

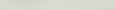
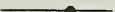




BMP's 12.6, 13.2, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 533-246

Acres: 49.0



- | | | | |
|---|-------------------------------|---|----------------------|
|  | Project Boundary |  | Water |
|  | Unit 533-246 |  | Beach Fringe/Estuary |
|  | Other Units |  | Second Growth |
|  | Timber Type Boundary |  | 200 ft contours |
|  | Eagle Nest Buffer (330ft) | | |
|  | Existing Roads | | |
|  | Proposed Roads | | |
|  | Class I Stream | | |
|  | Class IIa Stream | | |
|  | Class IIb Stream | | |
|  | Class III Stream | | |
|  | Potential Channel Type Change | | |



NORTH



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 533-246

Harvest Volume : 37.7 MBF/acre

Acres : 49.0

Resource Area	Concerns	Resolution
Silviculture	Protection of advanced regeneration in windthrow patches within unit. Mistletoe present in overstory. Salmonberry incursions.	Regeneration Harvest Type B. Select cedar for merchantable green-tree retention along boundaries (100'). Minimize soil disturbance. Consider PCT within 20 yrs. or sooner because of heavy advanced reproduction.
Fisheries	Class I stream along west boundary - mostly bedrock, boulders; relatively high gradient. Harvest within HGC buffer will exceed threshold of 25 percent.	100' no-commercial buffer, plus 50' selective harvest buffer along Class I stream. Alternative road location requires crossing of Class I stream. Apply timing restriction. Provide no harvest buffers on HGC streams within and adjacent to unit where feasible. Apply BMP 12.6, 12.7, 14.6, 14.9, 14.10, 14.14, 14.16, 14.17
Soils	No special concerns.	
Water Quality/Quantity	Two Class III streams originate in unit; one near north boundary flows north and the other flows west from the south portion of the unit. Both are very small, stable.	Remove logging-related debris (CT6.51). BMP 14.10
Wildlife	Fragmentation of contiguous forested tract leading from lower Big Creek drainage. Meets parameters for high quality goshawk habitat. Unit located within an Project-defined medium HCA.	Implement Level 2 structure retention through harvest prescription. Survey unit for goshawks prior to final layout.
Karst	No karst features observed within unit. There is a small chance for significant karst features. Karst features identified along proposed Road 65-78-10, which accesses the unit from the north.	Karsted portion of proposed road eliminated. An alternate location off a spur to the west has been proposed. Avoid construction over significant karst features (caves, vertical shafts, sinkholes, or insurgences). Personnel conducting final unit layout should be trained in karst identification.
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires Rd 65-78-10 to be constructed for 41 stations. Will require 3 stations of rock blasting to construct.	A portion of the existing road location was eliminated for karst considerations. An alternate road location off a spur to the west has been proposed which includes crossing a Class I stream. Timing restriction applies. This location has not been field verified. Close road upon completion of harvest. If road cannot be relocated, helicopter yarding will be required.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 533-246

Acres: 49.0



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 533-246 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |

F-151

May 23, 1995

UNIT PLAN & LAYOUT CARD **LAB BAY PROJECT AREA**

Unit #: 533-246 (Continued)

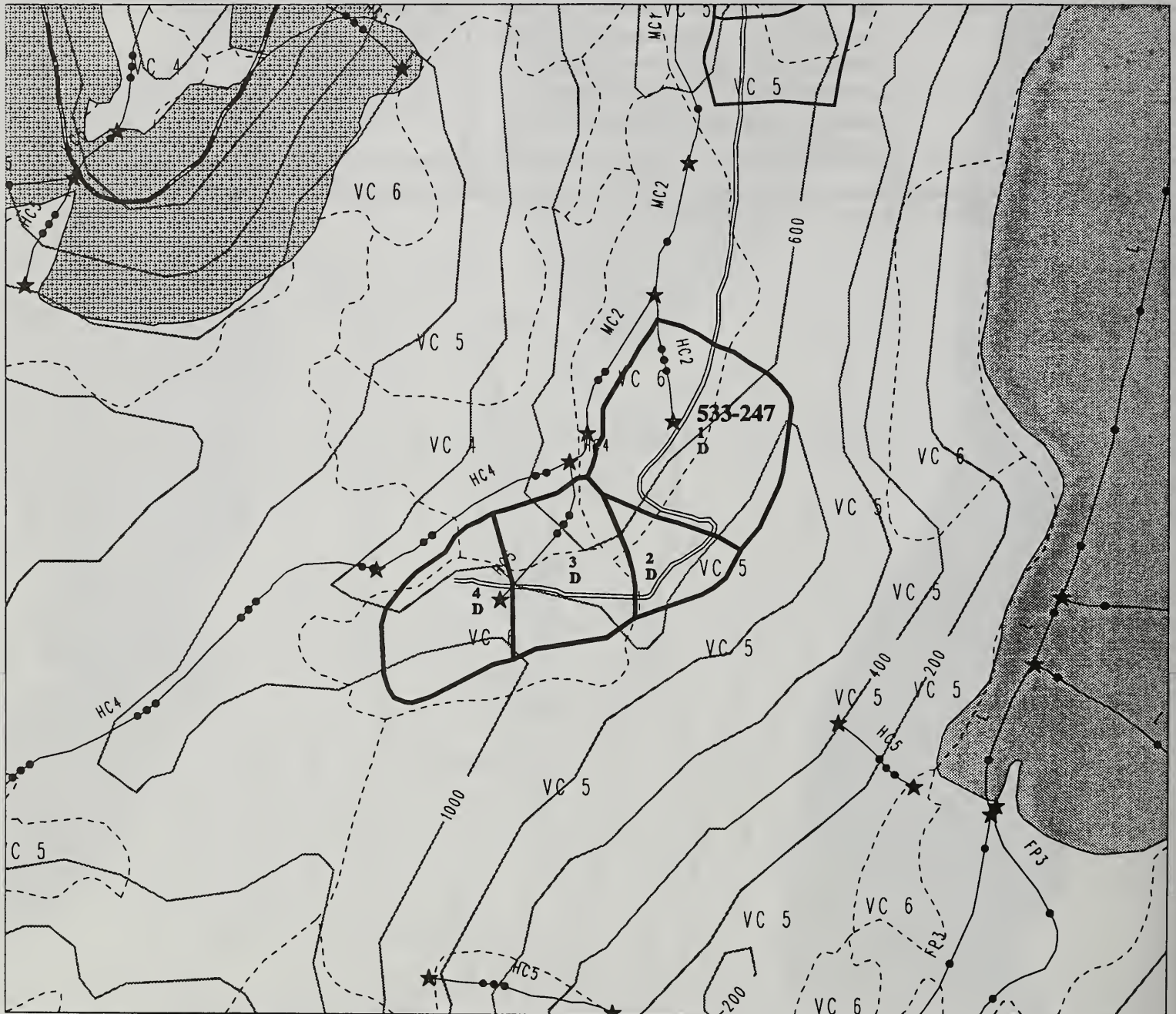
Unit Layout/Administration	Class I stream with 100' TTRA buffer, plus 50' selective harvest buffer on west boundary. Large blowdown area in unit. Swing yarder required due to small landings in middle of unit. Protect advanced regeneration in blowdown patches.	Design landing locations to yard beside and around blowdown patches.
Opportunities		

BMP 12.6, 12.7, 14.6, 14.9, 14.10, 14.14, 14.16, 14.17

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 533-247

Acres: 68.5



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 533-247 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |

F-153

April 25, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 533-247

Harvest Volume : 26.3 MBF/acre

Acres : 68.5

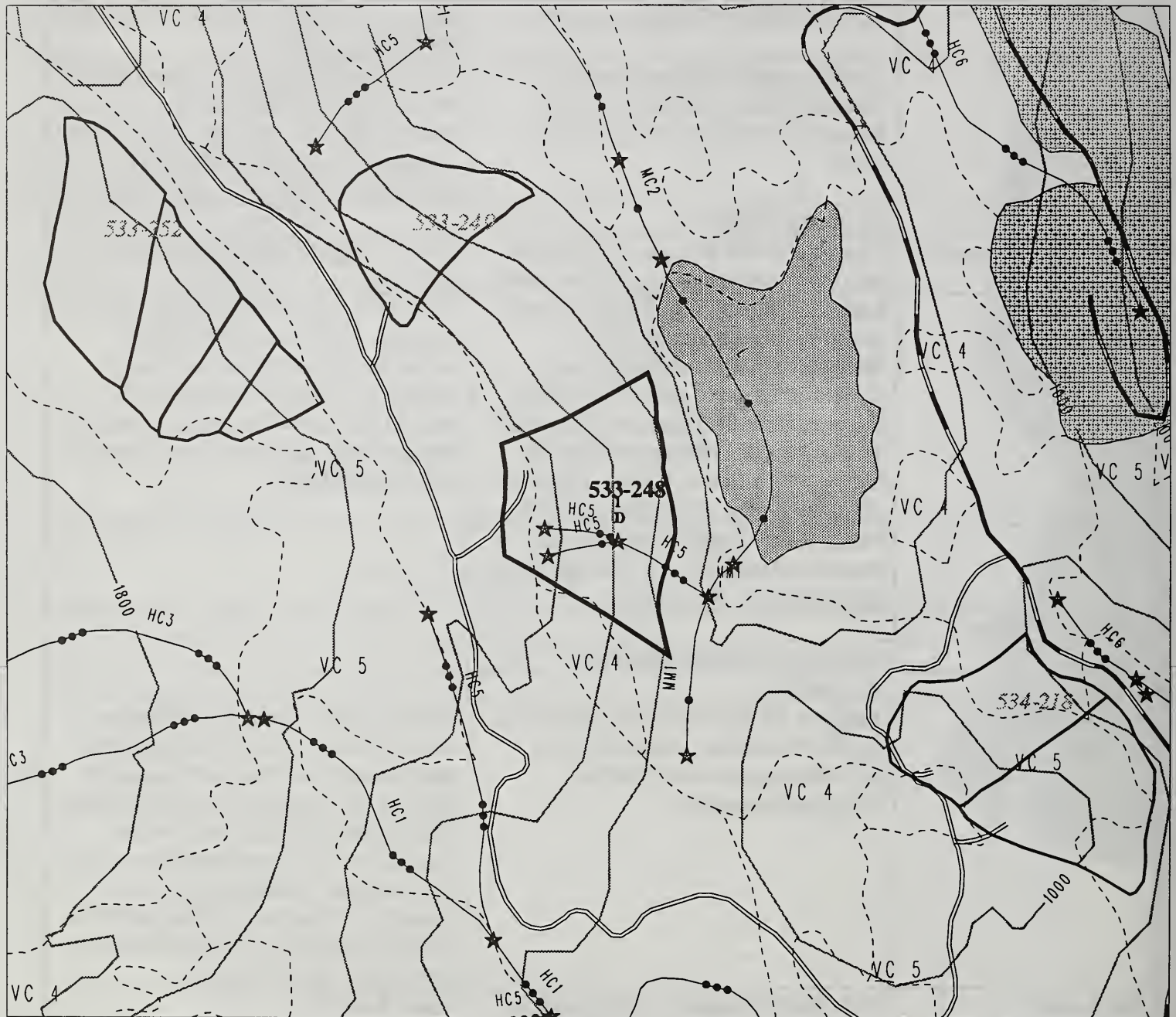
Resource Area	Concerns	Resolution
Silviculture	Low site index. Windthrow potential.	Regeneration Harvest Type D. Consider PCT within 20 yrs.
Fisheries	Class II stream along west boundary flows into Class I stream below unit. Mostly bedrock stairsteps and plunge pools.	100' no-commercial buffer along Class II stream. Alternate road location requires crossing of Class I stream. Apply timing restriction. Apply BMP's 12.6, 12.7, 14.6, 14.9, 14.10, 14.14, 14.16, 14.17
Soils	No special concerns.	
Water Quality/Quantity	Two small Class III streams flow north into Class II stream - low gradient, stable.	Remove logging-related debris (CT6.51). BMP 14.10
Wildlife	Level of windfirmness of block to north (between this unit and 533-246). Increased depletion of forest diversity. Up and down valley migration corridor. Fragmentation of contiguous tract of old-growth habitat. Meets parameters for high quality goshawk habitat. Located within an Project-defined medium HCA.	"Feather" north edge - ITM to retain windfirm trees within 100' of north boundary and west boundary. Retain trees $\leq 16"$ within two 4-acre islands within unit. Level 1 structure retention implemented. Survey unit for goshawks prior to final layout.
Karst	Phase 1 and 2 karst studies show unit drains to Class III stream that eventually drains to karst. No concerns.	
Visuals/Recreation		
Cultural	No cultural resources identified.	
Lands	No concerns.	
Transportation	Requires Rd. 65-78-10 to be constructed for 93+90 stations. Three stations of rock blasting and two 75'-radius switchbacks required.	A portion of the existing road location was eliminated for karst considerations. An alternate road location off a spur to the west has been proposed and includes a Class I stream crossing with timing restrictions. This location has not been field verified. Close road upon completion of harvest. If road cannot be relocated, helicopter yarding distances of over 1 mile will be required.
Unit Layout/ Administration	65% downhill yarding. Swing yarding preferred system. Shovel logging area in northwest portion of unit. Class II stream 100' TTRA buffer along northwest boundary of unit. History of blowdown in unit, but none recently.	Apply BMP 13.7
Opportunities		

BMP 12.6, 12.7, 13.7, 14.6, 14.9, 14.10, 14.14, 14.16, 14.17

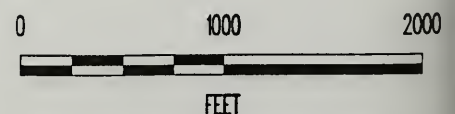
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 533-248

Acres: 28.9



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|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 533-248 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 533-248

Harvest Volume : 26.1 MBF/acre

Acres : 28.9

Resource Area	Concerns	Resolution
Silviculture	Steep slopes. Slope instability. Sitka alder and salmonberry incursions. Saturated soils. Mistletoe infection. Yellowcedar regeneration.	Regeneration Harvest Type D; consider yellowcedar planting. Minimize soil disturbance. Partial suspension to protect soil and advanced reproduction. Site-specific retention areas within the unit identified by field personnel. Consider PCT within 20 yrs
Fisheries	Lake east of unit and Class I stream along south portion of east boundary - support adfluvial trout. Retain riparian large woody debris for pool formation and sediment trapping. Harvest within HGC buffer will exceed threshold of 25 percent.	100' no-commercial harvest buffer, plus 400' selective harvest buffer around lake east of unit. 100' no-commercial harvest buffer on Class I stream along south portion of east boundary. Maintain trees on wet bench (see wildlife). Provide no harvest buffers on HGC streams within and adjacent to unit where feasible. Apply BMP 12.6
Soils	High MMI, steep slopes; shallow slides vegetated with devils club, etc. Minimize soil disturbance.	Achieve full suspension throughout unit. Apply BMP 13.5, 13.9
Water Quality/Quantity	Class III stream (forks) within unit - nickpoints in upper portion, actively downcutting. Protect root structure to maintain bank stability.	Achieve full suspension across Class III streams. Leave unmerchantable trees (<10" dbh) within 70' of channel. Apply BMPs 13.9, 12.7, 12.11, 14.10
Wildlife	High-use area (deer, hairy woodpecker, beaver pond) along bench in southwest. Previously unentered mountain slope. Increased access in high-quality marten habitat.	Implement Level 1 structure retention by maintaining all timber within lower bench and above road. See water quality resolutions. Maintain 50'-75' buffer along muskeg at top for cover. Close Road 65-78-24 following completion of harvest.
Karst	No karst features.	
Visuals/Recreation	Very visible from Rd. 20 near summit. Adopted Maximum Modification VQO.	Recommend leaving non-merchantable timber standing along upper boundary. 100' no-harvest buffer plus 400' selective harvest buffer will provide visual screening from Road 20. Meets VQO.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires Rd 65-78-24 constructed to STA 102+95 and spur 65-78-24.2 for 5+65 stations.	Close Road 65-78-24 after completion of harvest.

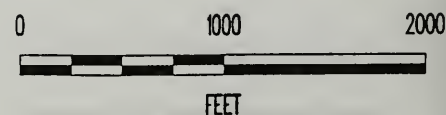
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 533-248

Acres: 28.9



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|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 533-248 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-157

May 16, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 533-248 (Continued)

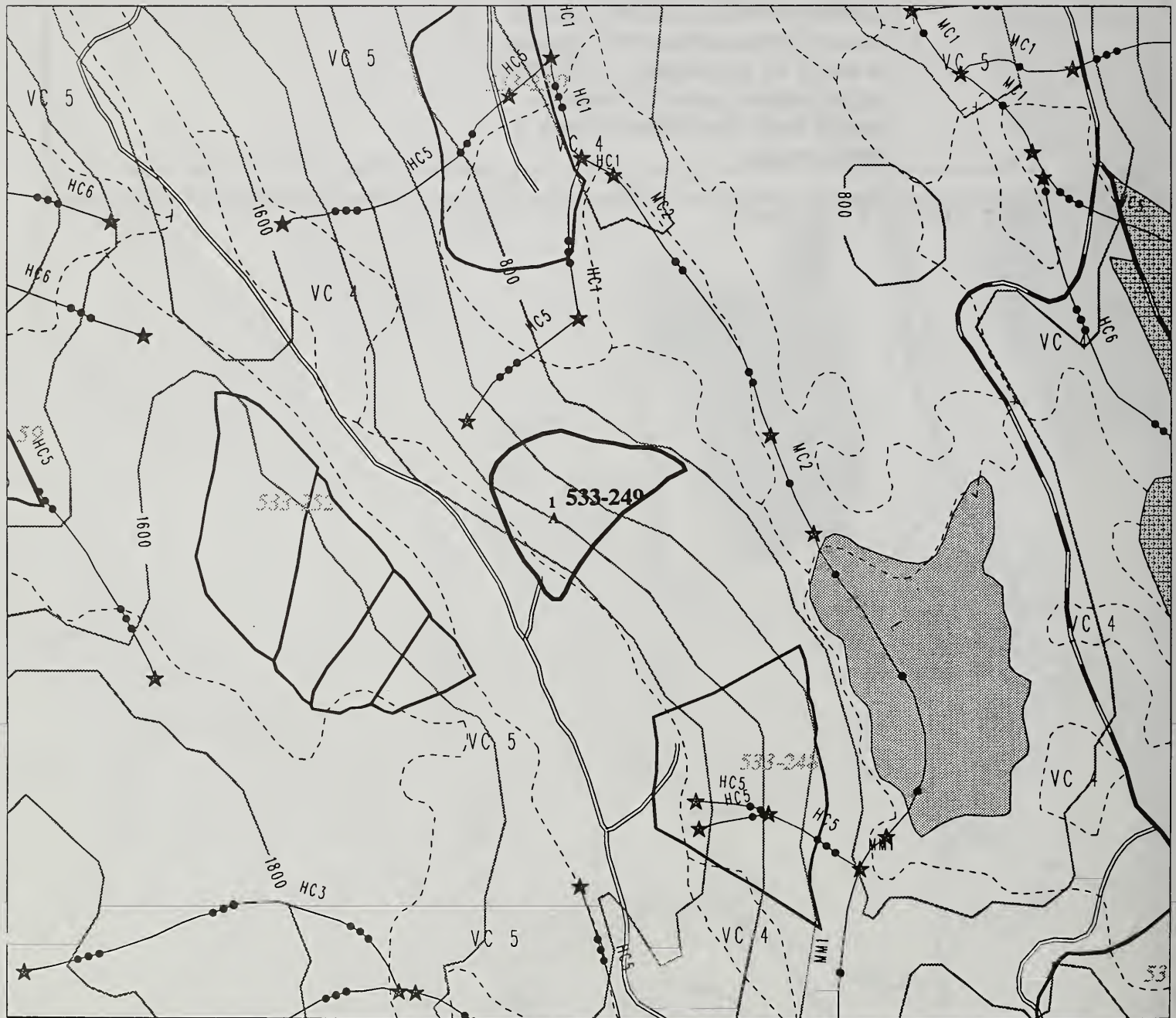
Unit Layout/ Administration	Requires large skyline yarder with 100'-110' tower using a motorized drop line carriage. Rock anchors will be necessary, at least 2 for guy anchors. A 100' TTRA buffer required, plus a 500' selective harvest buffer along lake and stream at bottom of unit.	
Opportunities		

BMP's 12.6, 12.7, 12.11, 13.5, 13.9, 14.10.

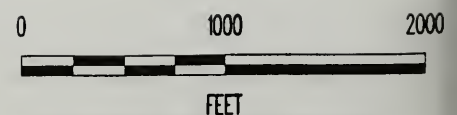
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 533-249

Acres: 15.9



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|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 533-249 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-159

May 16, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 533-249

Harvest Volume : 29.8 MBF/acre

Acres : 15.9

Resource Area	Concerns	Resolution
Silviculture	Steep slopes. Overstocking. Shallow soils; slope instability. Salmonberry and alder incursions.	Regeneration Harvest Type A. Partial suspension to protect soil and advanced reproduction. Consider PCT within 20 yrs.
Fisheries	No streams in or near unit.	
Soils	High MMI soils; slopes 70-100%; several colluvial deposits, healing slides within units. Concern for accelerated mass wasting following tree removal and also disturbance of shallow soils.	Achieve at least partial suspension to minimize soil disturbance - full suspension in lower half of unit. Apply BMP's 13.5, 13.9, 12.11, 14.8, 14.10
Water Quality/Quantity	No streams in unit.	
Wildlife	High-use deer area on top. Vertical migration area. Entry on previously unharvested mountain slope.	Level 1 structure through 150' selective harvest buffer on west boundary to provide muskeg adjacent cover. Close Road 64-78-24 following harvest.
Karst	No karst resources.	
Visuals/Recreation	Very visible from Rd 20. Adopted Maximum Modification VQO.	Meets VQO.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires construction of Rd. 65-78-24 to STA 119+00 and spur Rd. 65-78-24.2 for 3+67 stations.	Road closure upon completion of harvest.
Unit Layout/Administration	Steep unit. Large skyline yarder with 100'-110' tower using shotgun carriage. Deadmen or rock bolt anchors needed for back guylines. Confirm partial suspension throughout unit. May need motorized carriage and standing skyline to achieve partial suspension over the whole unit, or could be helicopter logged.	Profile analysis does not show ability to get full suspension on lower half of unit. Check with additional profiles or helicopter log with adjacent units that are going to be helicopter logged.
Opportunities	Potential trailhead location for Summit Lake.	

BMP's 12.11, 13.5, 13.9, 14.8, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 533-250

Acres: 32.6



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 533-250 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 533-250

Harvest Volume : 23.0 MBF/acre

Acres : 32.6

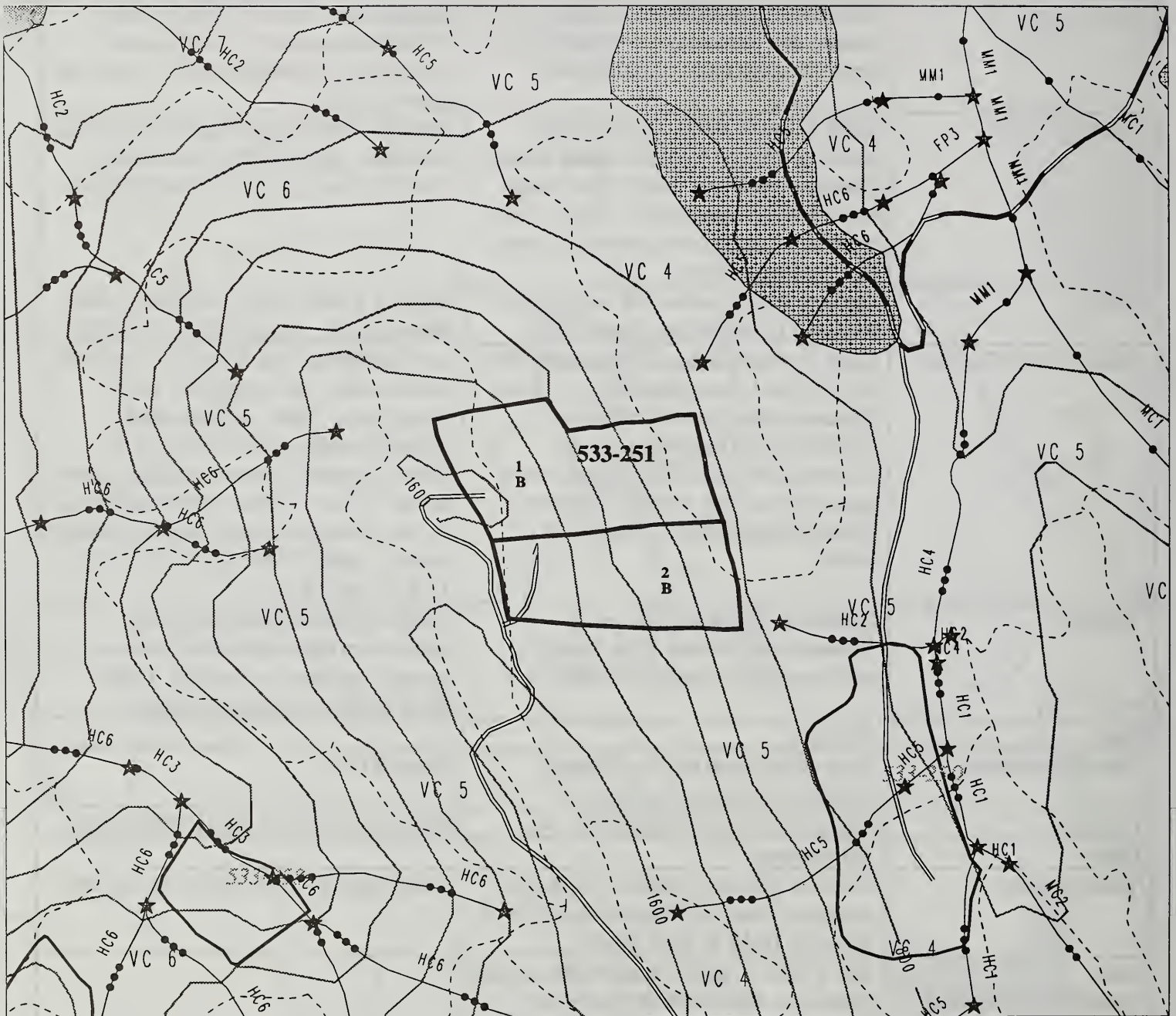
Resource Area	Concerns	Resolution
Silviculture	Advanced reproduction has unknown disease that causes lower branches on hemlock to die back. Shallow soils.	Regeneration Harvest Type A; retain unmerchantable timber along stream channels and between settings. Survey to insure stocking.
Fisheries	Class II stream along east boundary - some off-channel habitat in valley bottom; riparian area provides high flow refuge, especially in south portion of unit. Class I stream crossing on reconstructed road (see Transportation).	Maintain 100' required buffer along Class II stream. Apply timing restriction to Class I crossing. BMP 12.6, 14.6, 14.17
Soils	Shallow soils - concern for loss of soil in west half of unit where slopes >60%.	Achieve at least partial suspension where slopes >60%. Apply BMP's 13.5, 13.9
Water Quality/Quantity	Class II stream along east boundary flows into a Class I downstream of unit. Class III stream along north boundary is slightly incised but stable. Stream between LD1 and LD2 is incised; some instability in inner gorge. Four other Class III streams flow through unit - stable.	100' buffer on Class II stream. Put north unit boundary on topographic break above creek. Split yard and retain unmerchantable trees within 100' of stream channels. Remove logging-related debris (CT6.51). Split yard on identified stream courses and retain unmerchantable timber. Apply BMP's 12.6, 12.7, 12.11, 13.2, 13.16, 14.10
Wildlife	Reduction in structural diversity. Increased road access. Unit located within an Project-defined medium HCA.	Level 1 structure retained through retention of unmerchantable trees along streams and between settings. Close Road 65-78-14 following harvest.
Karst	No karst.	
Visual/Recreation	Very visible from Rd 20. Adopted Maximum Modification VQO.	Meets VQO.
Cultural	No cultural resources identified.	Report findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires replacing bridge over Class I stream on Road 2087 and construction of Road 65-78-14 to STA 32+00.	Close Road 65-78-14 following harvest.
Unit Layout/Administration	100' TTRA Class II stream buffer on east boundary. Split yarding required on Class III stream between LD1 and LD2 and recommended on 3 others. Swing yarding along road for all of unit. Partial suspension required and should be available - numerous profiles will be required. West boundary may need to be adjusted to achieve partial suspension.	
Opportunities		

BMP's 12.6, 12.7, 12.11, 13.2, 13.5, 13.9, 13.16, 14.6, 14.10, 14.17.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 533-251

Acres: 47.3



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 533-251 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 533-251

Harvest Volume : 26.5 MBF/acre

Acres : 47.3

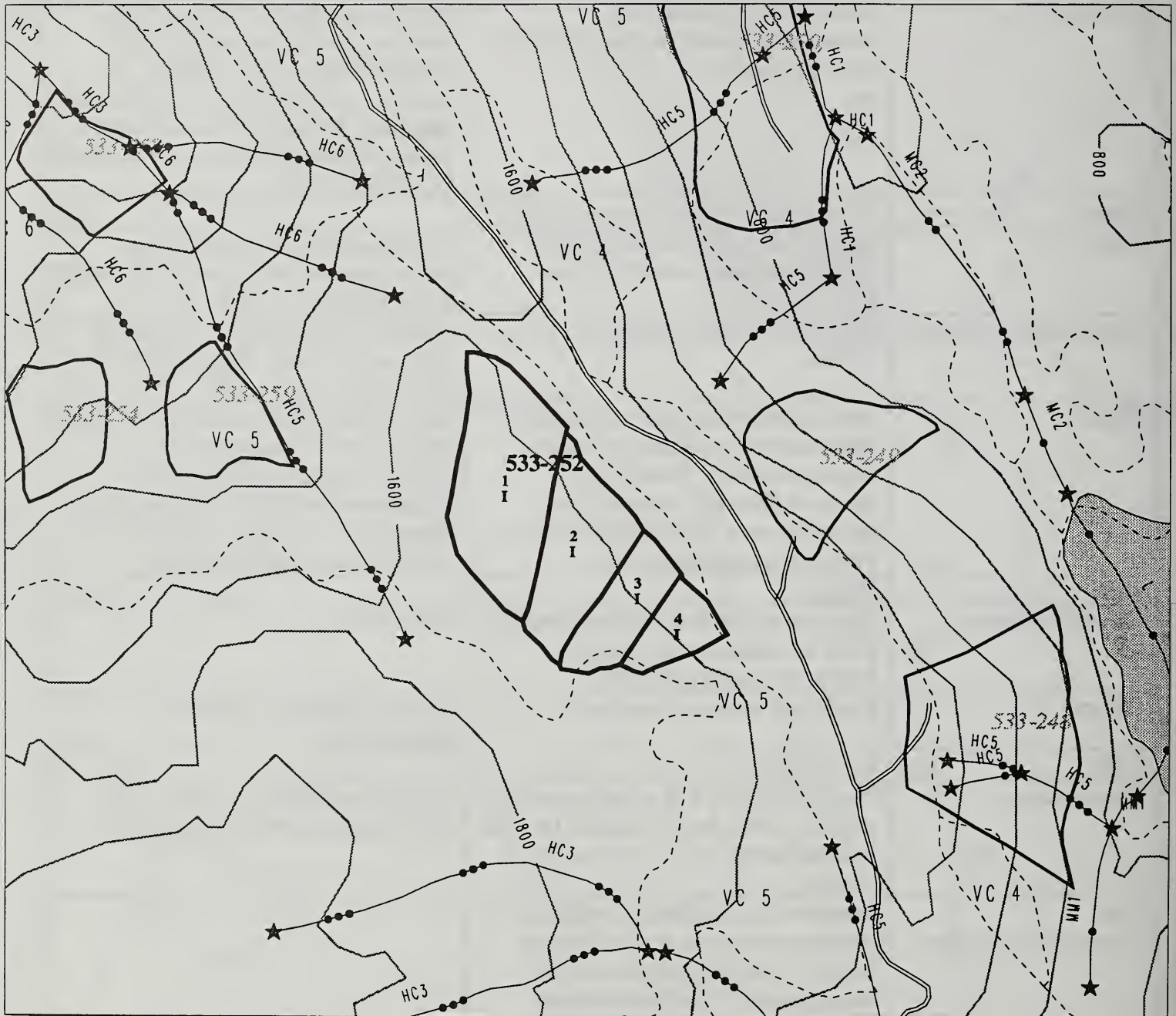
Resource Area	Concerns	Resolution
Silviculture	Steep slopes. Shallow soils. Salmonberry incursions. Saturated soils. Cedar regeneration.	Regeneration Harvest Type B; retain structure along unit boundaries and between settings where possible. Site-specific retention area identified by field personnel. Partial suspension to protect advanced reproduction and soil. Consider PCT within 20 yrs.
Fisheries	No fish-bearing streams in or near unit.	
Soils	Shallow soils, steep slopes (70-100% +). Concern for loss of soil if disturbed.	Achieve at least partial suspension throughout unit - full in lower half of unit. Apply BMP's 13.5, 13.9, 14.8
Water Quality/Quantity	Two small Class III streams; stable, not incised.	Achieve full suspension when yarding across or split yard. Apply BMP's 12.7, 13.9, 12.11, 13.16, 14.10
Wildlife	Game trails indicate heavy use approx. 300' north of south boundary - vertical migration corridor. Reduction in structural diversity. Increased road access into area. Unit located within an Project-defined medium HCA.	Identify trail in field and directional fall to keep slash out of game trail. Level 1 structure retained through harvest prescription, including blind lead. Close Roads 65-78-24, -24.3, -24.4, -24.5 following completion of harvest.
Karst	No karst.	
Visuals/Recreation	Visible from Red Bay and the Cruiseship Route in middleground. Adopted Maximum Modification VQO.	Meets VQO.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires Rd. 65-78-24 to be constructed to STA 152+00, Rd. 65-78-24.3 for 5+50 stations, and Rd. 65-78-24.4 for 20+80 stations.	Close Roads 65-78-24, -24.3, -24.4, -24.5 following completion of harvest.
Unit Layout/Administration	Designed for large skyline yarder with 100' tower using live skyline, shotgun carriage. Southerly portion could be swing yarded. Partial suspension is required and numerous profiles will be required to insure partial suspension.	
Opportunities		

BMP's 12.7, 12.11, 13.5, 13.9, 13.16, 14.8, 14.10.

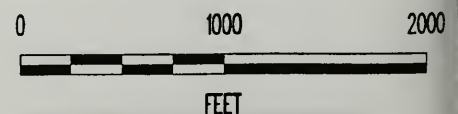
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 533-252

Acres: 43.1



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 533-252 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-165

May 16, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 533-252

Harvest Volume : 15.5 MBF/acre

Acres : 43.1

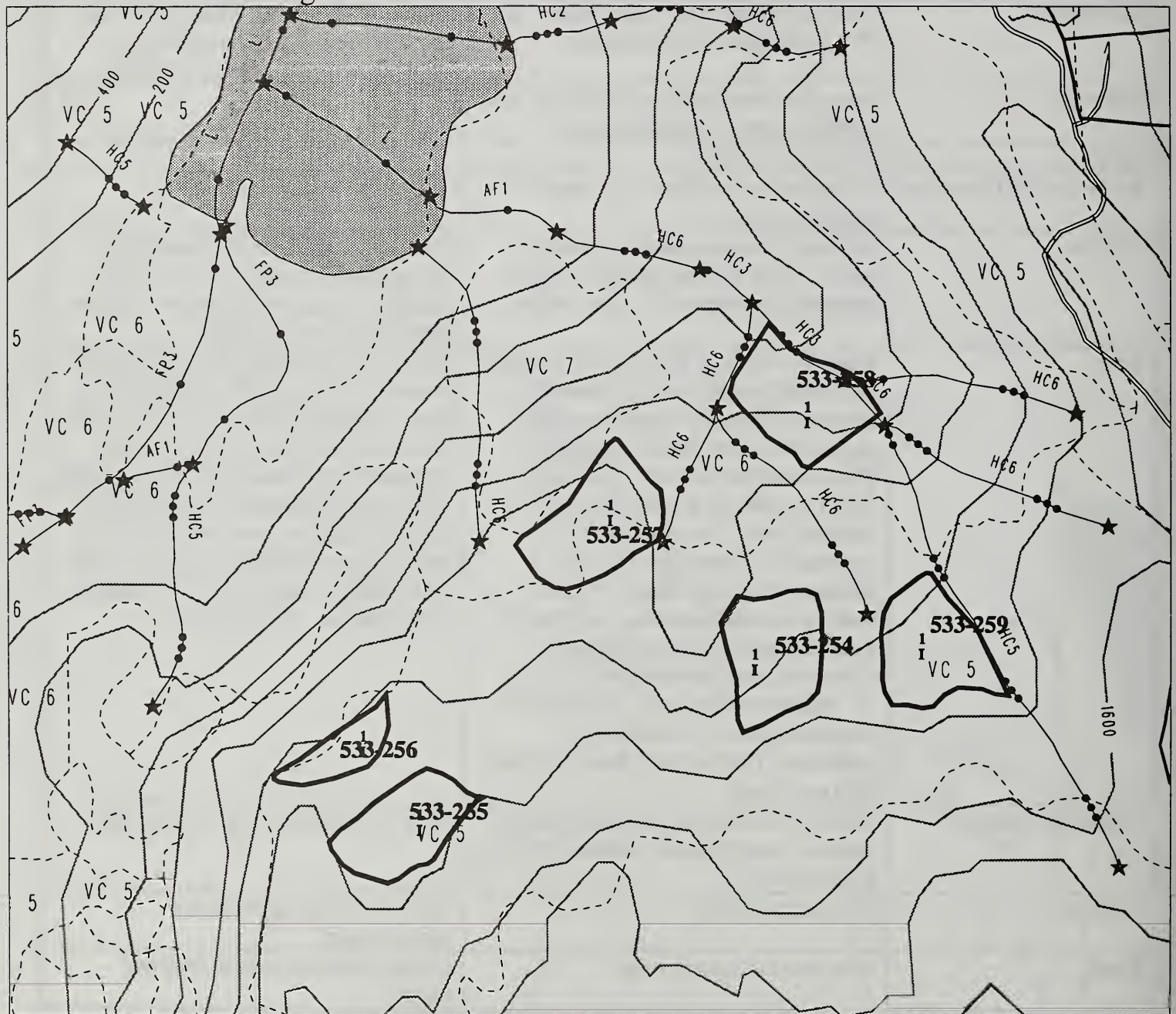
Resource Area	Concerns	Resolution
Silviculture	Thin soils. Expect adequate regen. No PCT is expected to be necessary.	Regeneration Harvest Type I. Heli-log. Select groups of trees not located or immediately adjacent to karst features.
Fisheries	No surface water streams were identified within the unit or adjacent to unit.	
Soils	No special concerns.	
Water Quality/Quantity	No surface water in unit. No special concerns.	
Wildlife	New entry into previously unaltered basins. Open muskeg and open canopy meadows disturbance by road location.	Level 1 structure will be maintained through Type I harvest. Close road by pulling culverts and terminating travel at Road 20 following harvest.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to extremely well-developed, high-density karst features (sinkholes, grikes, solution channels), some steep slopes, elevations at or exceeding 1400', and thin soils. Unit is adjacent to proposed El Capitan karst Special Interest Area. High density of karst features will make harvest, according to standards and guidelines, difficult. Sinkholes identified along Road 65-78-23. High risk karst area. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Modify unit boundary to avoid slopes in excess of 70%, or retain areas of greater than 70% slopes. Directionally fell away from significant karst features (caves, vertical shafts, sinkholes, or insurgences). Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers. Drop Rd 65-78-23 due to karst features. Heli-log unit.
Visuals/Recreation	Visible from Red Bay and the Cruiseship Route in middleground. Adopted Partial Retention VQO.	Type I harvest; heli-log. Meets VQO.
Cultural	No special concern.	Report any findings to Forest archaeologist.
Lands	Near Special Interest Area.	Locate boundary prior to final unit layout.
Transportation	~18 STA full bench drill and shoot through karsted area. Concerns for karst features with potential for collapse - may be significant.	Helicopter log to landings constructed on Rd. 65-78-24 (road to unit 533-251). Close road by pulling culverts and terminating travel at Road 20 following harvest. BMP 12.11, 14.3
Unit Layout/Administration	90' tower - running skyline.	Helicopter log to same landings as units 533-254 through -259.
Opportunities		

BMP's 12.11, 14.3

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 533-254 through 533-259

Acres: 54.4



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|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Selected Units | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 533-254/255/
256/257/258/259

Harvest Volume : 15.4 MBF/acre

Acres : 54.3

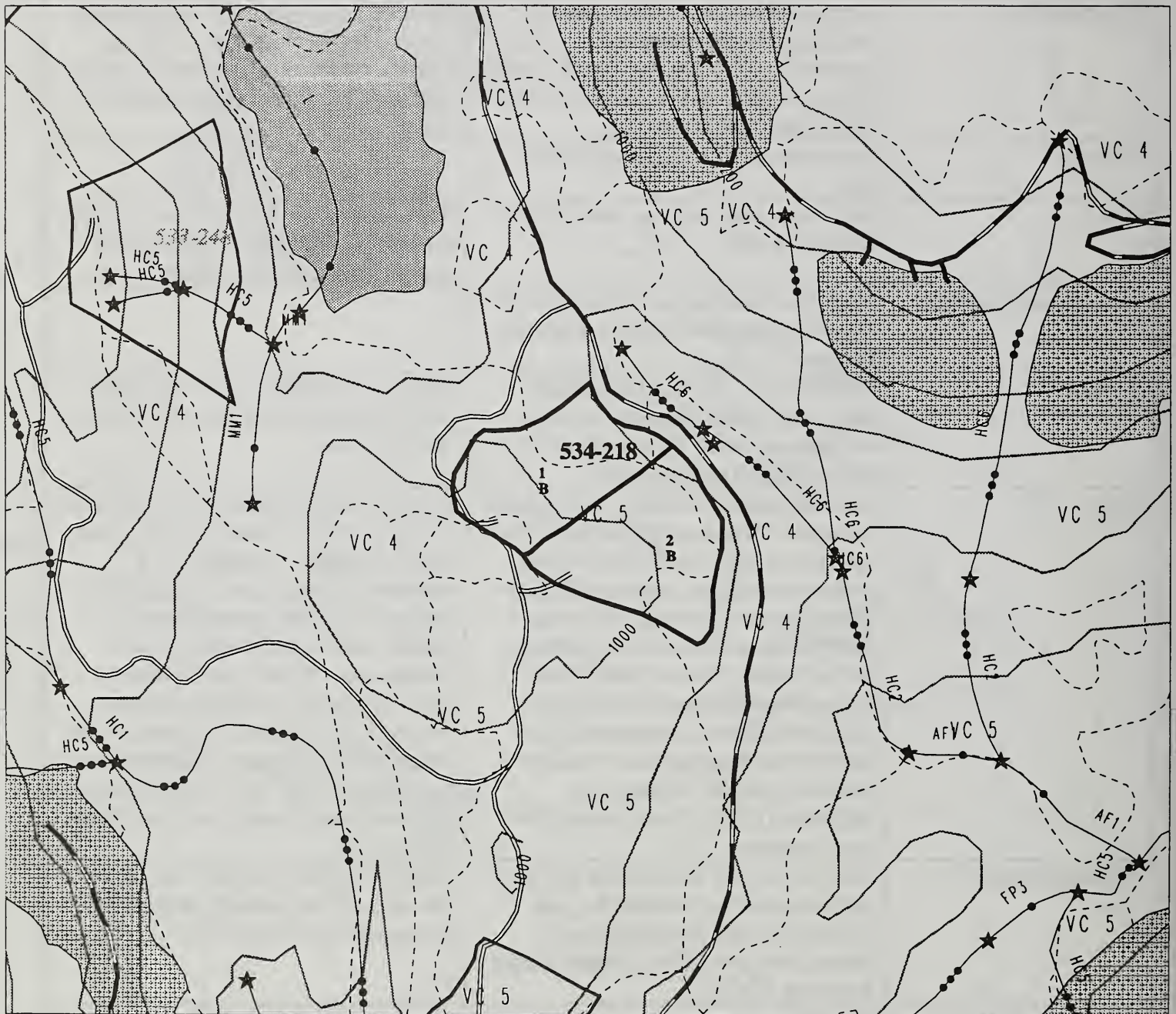
Resource Area	Concerns	Resolution
Silviculture	Above 1400' level: (1) not adequate restocking expected w/in 5 years. (2) growth is estimated at less than 20 cubic ft/acre per year. Below 1400' level there are no regeneration concerns.	Remove area above 1,400' from suitable timber base. Harvest Type I; 1/2-acre patches within designated units to protect soils and improve regeneration success.
Fisheries	No surface water within or adjacent to unit.	
Soils	Shallow organic soils, esp. above 1400' - McGilvery soils.	Remove area above 1,400' from suitable timber base. Helicopter yard remainder to protect shallow soils. BMP 13.5
Water Quality/Quantity	No surface water on site. Concerns for effects on subsurface flow, underground features.	
Wildlife	New entry into previous unmodified landscape. Initial fragments of large contiguous tract. Units located within an Project-defined medium HCA.	Maintain area above 1,400'; maintain standing dead and cull trees when not a safety concern.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to high-density of extremely well-developed karst features (sinkholes, grikes, solution channels), insurgences, resurgences, shallow soils, steep slopes, and elevations at or exceeding 1400'. Groundwater discharge to Red Lake. Units are adjacent to proposed El Cap karst Special Interest Area. If units are harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Modify unit boundary to avoid slopes in excess of 70%, or retain areas of greater than 70% slopes. Individual tree selection (Harvest Type I) due to high density of significant karst features (caves, vertical shafts, sinkholes, or insurgences). Directionally fell away from significant karst features (caves, vertical shafts, sinkholes, or insurgences). Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers.
Visuals/Recreation	Area above 1400' visible from Red Lake. Units also visible from Red Bay and Cruiseship Route in middleground. Scenic Viewshed LUD. Adopted Partial Retention VQO.	Area above 1400' dropped from harvest. All units will be harvested through 1/2 acre patch cuts to meet VQO.
Cultural	No special concerns.	Report any findings to Forest archaeologist.
Lands	Adjacent to Special Interest Area.	Locate boundary of Special Interest Area prior to final unit layout.
Transportation	Road not feasible - too much drill and shoot. Helicopter log.	Helicopter log to landing constructed on Rd. 65-78-24 (road to unit 533-251).
Unit Layout/Administration	Increase size of unit to give a logical helicopter unit (<1400' elev.). Area above 1400' has been taken out of timber base. Fall trees away from karst features.	Helicopter units should be identified as shown on map. Keep units under 10 acres in size and located below 1,400' elevation.
Opportunities		

BMP 13.5.

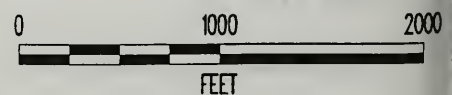
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 534-218

Acres: 38.0



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 534-218 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 534-218

Harvest Volume : 23.0 MBF/acre

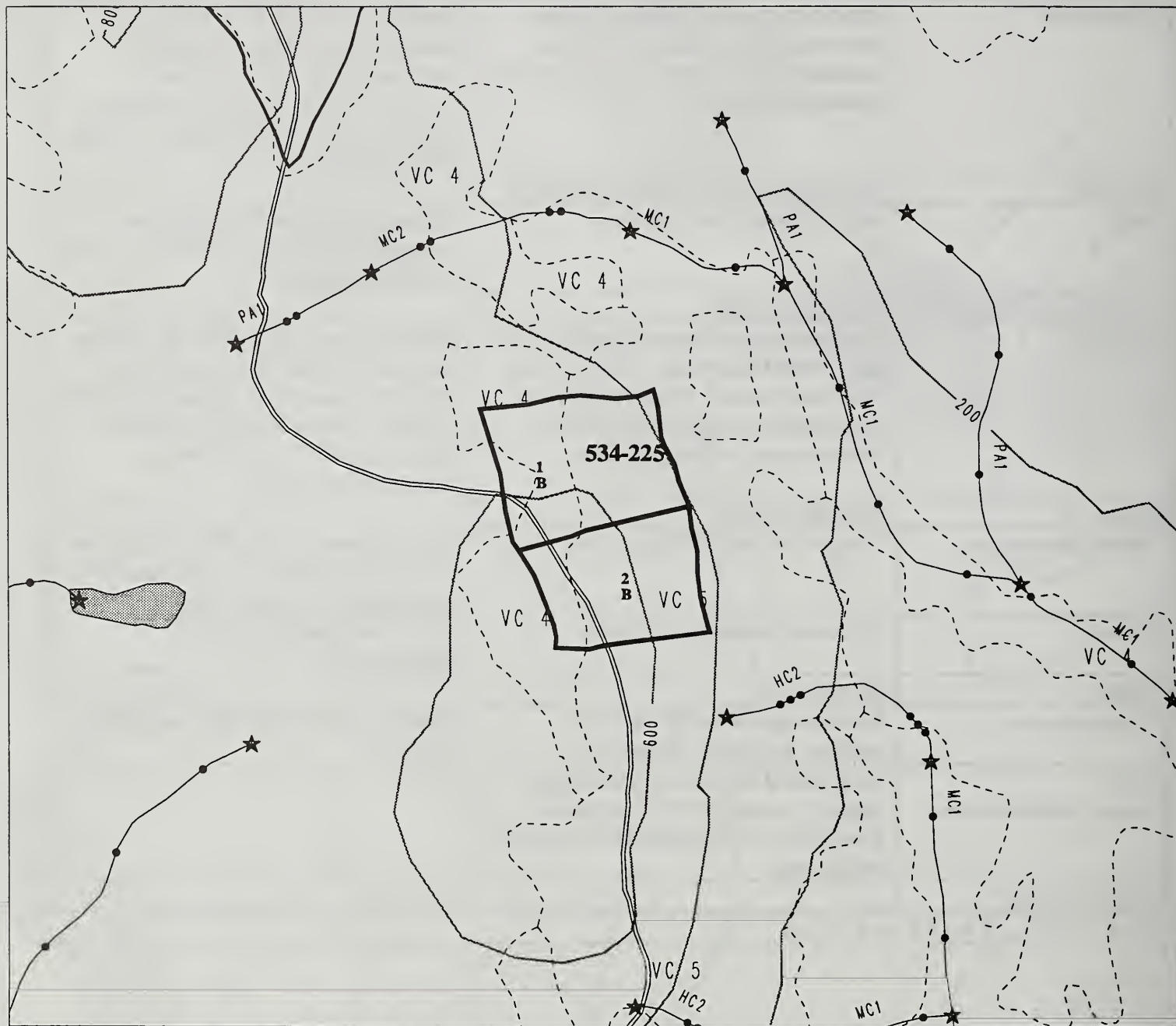
Acres : 38.0

Resource Area	Concerns	Resolution
Silviculture	Significant hemlock canker near road. Root rot pockets. Mistletoe infection. Saturated soils. Salmonberry incursions with soil disturbance.	Regeneration Harvest Type B. Select cedar as reserve trees. Site-specific retention area identified by field personnel. Minimize soil disturbance. Consider yellowcedar planting. Consider PCT within 20 yrs.
Fisheries	No fish-bearing streams in or near unit.	
Soils	High MMI soils, steep slopes.	Achieve at least partial suspension throughout unit. Apply BMPs 13.5, 13.9, 12.11, 14.8, 14.10.
Water Quality/Quantity	No streams in unit.	
Wildlife	Muskeg complexes between Road 20 and unit - retain hiding cover. Reduction in old-growth habitat. High-quality marten and cavity excavator winter habitat. Increase roaded access into area.	Retain all trees within 100'-200' of Road 20 to meet wildlife and visual concerns and partial suspension requirement. This will meet Level 1 structure retention. Close Road 65-78-24 following completion of harvest.
Karst	No karst features.	
Visuals/Recreation	Visible from Road 20 (adjacent to road).	Retain all trees within 100'-200' of Road 20 to meet wildlife and visual concerns and partial suspension requirement.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires spur Road 65-78-24.1 (8 stations) and short 1 station spur.	Close Road 65-78-24 after completion of harvest.
Unit Layout/Administration	Recommend large tower with shotgun rigging. Leave 100'-200' buffer along Road 20 due to lack of partial suspension in this area.	
Opportunities		
BMP's 12.11, 13.5, 13.9, 14.8, 14.10.		

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 534-225

Acres: 37.3



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|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 534-225 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 534-225

Harvest Volume : 21.5 MBF/acre

Acres : 37.3

Resource Area	Concerns	Resolution
Silviculture	Large (5") advanced reproduction in lower portion of unit. Overstocking. Slope instability.	Regeneration Harvest Type B. Protect larger advanced reproduction, where practical, along east boundary of unit. Consider PCT within 20 yrs.
Fisheries	See water quality.	Apply timing restrictions to stream crossings. BMP 12.6, 12.7, 14.6, 14.16, 14.17
Soils	Small slump along north boundary - healing. High MMI in lower portion of unit where slopes >60%.	Put north unit boundary to south of slump area. Achieve partial suspension where slopes >60%. Apply BMP's 13.2, 13.5, 13.9, 12.11, 14.10
Water Quality/Quantity	Two Class III streams in unit; stable, good sediment buffering below unit before Class I stream.	Split yard on stream near middle of unit. Remove logging-related debris from both streams. Apply BMP 12.7, 13.16
Wildlife	Previously unaltered area - maintain diversity and snag habitat. Travel corridor. Increased road access into a previously unroaded area. Meets parameters for high quality goshawk habitat.	Implement Level 1 structure retention through maintenance of the following: within 50' of Class III stream near center of unit, retain trees <10' dbh; retain structure (ITM) along 100'-wide edge of unit. Survey unit for goshawks prior to final layout. Close Road 65-79-05 following completion of harvest.
Karst	No karst.	
Visuals/Recreation	Visible from Salmon Bay in middleground. Adopted Modification VQO.	Meets VQO.
Cultural	No cultural resources identified.	Notify Forest archaeologist of any findings.
Lands	No concerns.	
Transportation	Rd. 65-79-05 needs to be constructed to STA 126+70.	Close Road 65-79-05 following completion of harvest. Reasonable access will be provided for mining claims.
Unit Layout/Administration	Minimum 90' tower with live skyline with shotgun and slackpulling carriage capabilities. Lots of deflection; split yard stream in the center of unit. Partial suspension required and available in lower part of unit.	
Opportunities		

BMP's 12.6, 12.7, 12.11, 13.2, 13.5, 13.9, 14.6, 14.10, 14.16, 14.17.

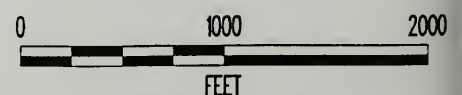
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 534-226

Acres: 40.7



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|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 534-226 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-173

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 534-226

Harvest Volume : 11.9 MBF/acre

Acres : 40.7

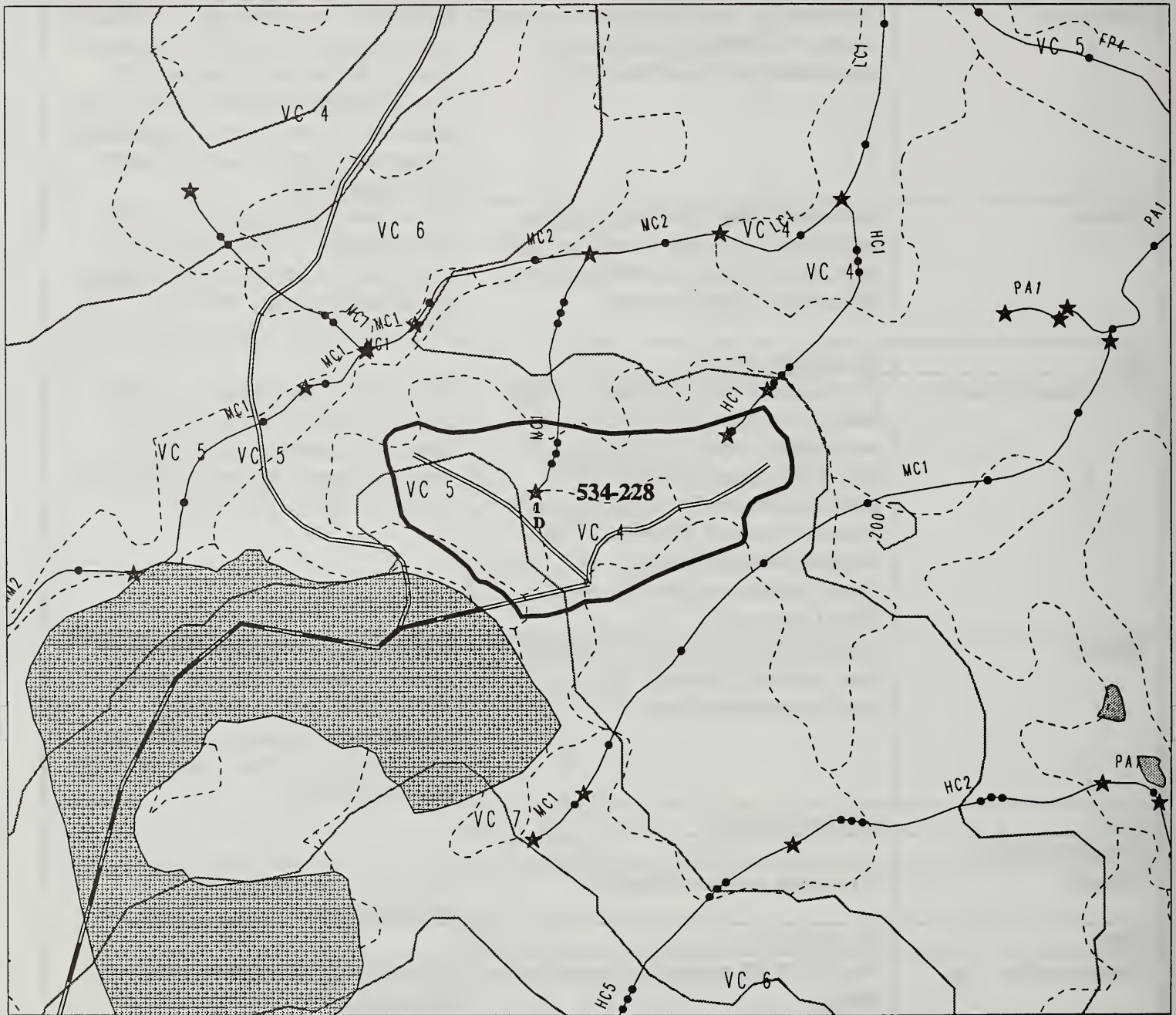
Resource Area	Concerns	Resolution
Silviculture	Overstocking. Portions of unit less than 8 mbf/ac. Windthrow. Saturated soils. Salmonberry and brush incursions.	Regeneration Harvest Type D. Minimize soil disturbance. Avoid portions of unit less than 8m/ac where practical. Site-specific retention area identified by field personnel. Protect advanced regeneration in southwest portion of unit. Consider PCT within 20 yrs.
Fisheries	See water quality. Fish bearing stream begins just east of unit. One Class I and one Class IIa stream crossings to access this unit (see Transportation).	Locate east unit boundary to maintain 100' buffer above fish-bearing stream. Apply timing restrictions to class I and IIa stream crossings. BMP 12.6, 13.2, 13.16, 14.6, 14.10, 14.14, 14.16, 14.17
Soils	No special concerns.	
Water Quality/Quantity	Two Class III streams in unit. The one flowing east through the center of the unit becomes fish-bearing downslope of the unit. The channel within the unit is stable; it is shallowly incised and flows mostly on bedrock. Prevent increased sediment transport to fish stream. Other Class III stream is stable and does not affect fish stream.	Directionally fall and yard away from Class III stream in mid-unit. Leave unmerchantable trees within 50' of channel. Remove logging-related debris (CT6.51). BMP's 12.7, 12.11
Wildlife	Large opening in previously unaltered area - maintain diversity. Entry into a previously unroaded area.	Implement Level 1 structure through 5 acre leave-tree island in west-central portion of unit, and retention of unmerchantable trees within 50' of both Class III streams. Close Road 65-79-05 following harvest.
Karst	No karst features.	
Visuals/Recreation		
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Road 65-79-05 needs to be constructed to 89+52.	Apply timing restrictions to one Class I and one Class IIa crossings. Close Road 65-79-05 after completion of harvest. Reasonable access will be provided for mining claims.
Unit Layout/Administration	Minimum 90' tower with a grabinski (north setting shown on map not flagged in field). Unit can be enlarged to the north. Tail trees along west boundary will require twistering. Partial suspension not required.	
Opportunities		

BMP's 12.6, 12.7, 12.11, 13.2, 13.16, 14.6, 14.10, 14.14, 14.16, 14.17.

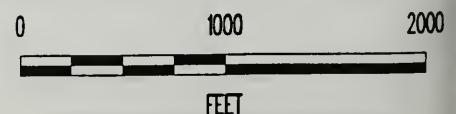
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 534-228

Acres: 51.5



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|---|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 534-228 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| ★ | Potential Channel Type Change | | |



F-175

May 23, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 534-228

Harvest Volume : 18.8 MBF/acre

Acres : 51.5

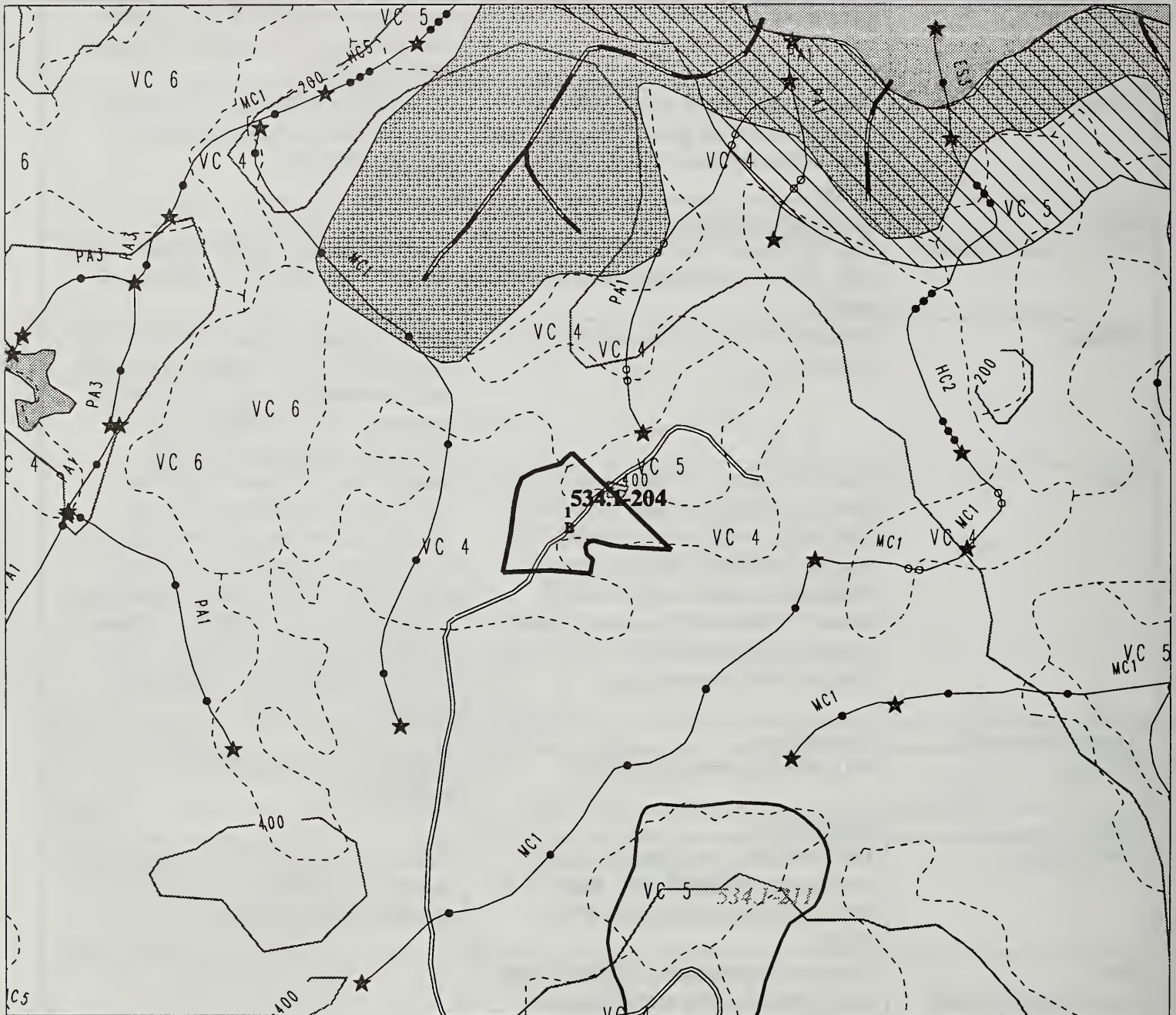
Resource Area	Concerns	Resolution
Silviculture	Overstocking.	Regeneration Harvest Type D; retain buffers around karst features. Consider PCT within 25 yrs.
Fisheries	Class I stream along south boundary; coho fry observed; good rearing habitat. Provide future source of large woody debris.	100' required buffer, plus 50' selective harvest buffer along Class I stream. Apply BMP 12.6
Soils	No special concerns.	
Water Quality/Quantity	Class III stream flows northeast through unit - potential to damage banks during yarding.	Yard away from Class III stream. Apply BMP 12.7, 12.11, 13.16, 14.8, 14.10
Wildlife	Depletion of snag habitat and structural diversity.	Maintain west boundary 100' from edge of muskeg and 100' stream buffer along southeast boundary will retain Level 1 structure. Close Road 65-79-05 following completion of harvest.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to moderately-developed karst features (sinkholes, grikes, solution channels), and proximity to Class I stream. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Avoid construction over sinkholes; directional felling away from karst features. Avoid yarding over significant karst features (caves, vertical shafts, sinkholes, or insurgences). Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers.
Visuals/Recreation	No concerns	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	1660' temporary road required to split yard creek in center of unit. Road 65-79-05 needs to be constructed to STA 20+00.	Close Road 65-79-05 after completion of harvest. Reasonable access will be provided for mining claims.
Unit Layout/Administration	Swing yard w/grapples - portion of unit can be logged with a mobile tailhold; partial suspension should be available.	
Opportunities		

BMP's 12.6, 12.7, 12.11, 13.16, 14.8, 14.10.

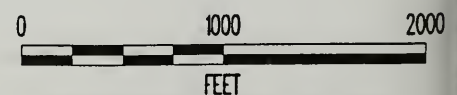
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 534.1-204

Acres: 10.2



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|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 534.1-204 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-177

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 534.1-204

Harvest Volume : 13.3 MBF/acre

Acres : 10.2

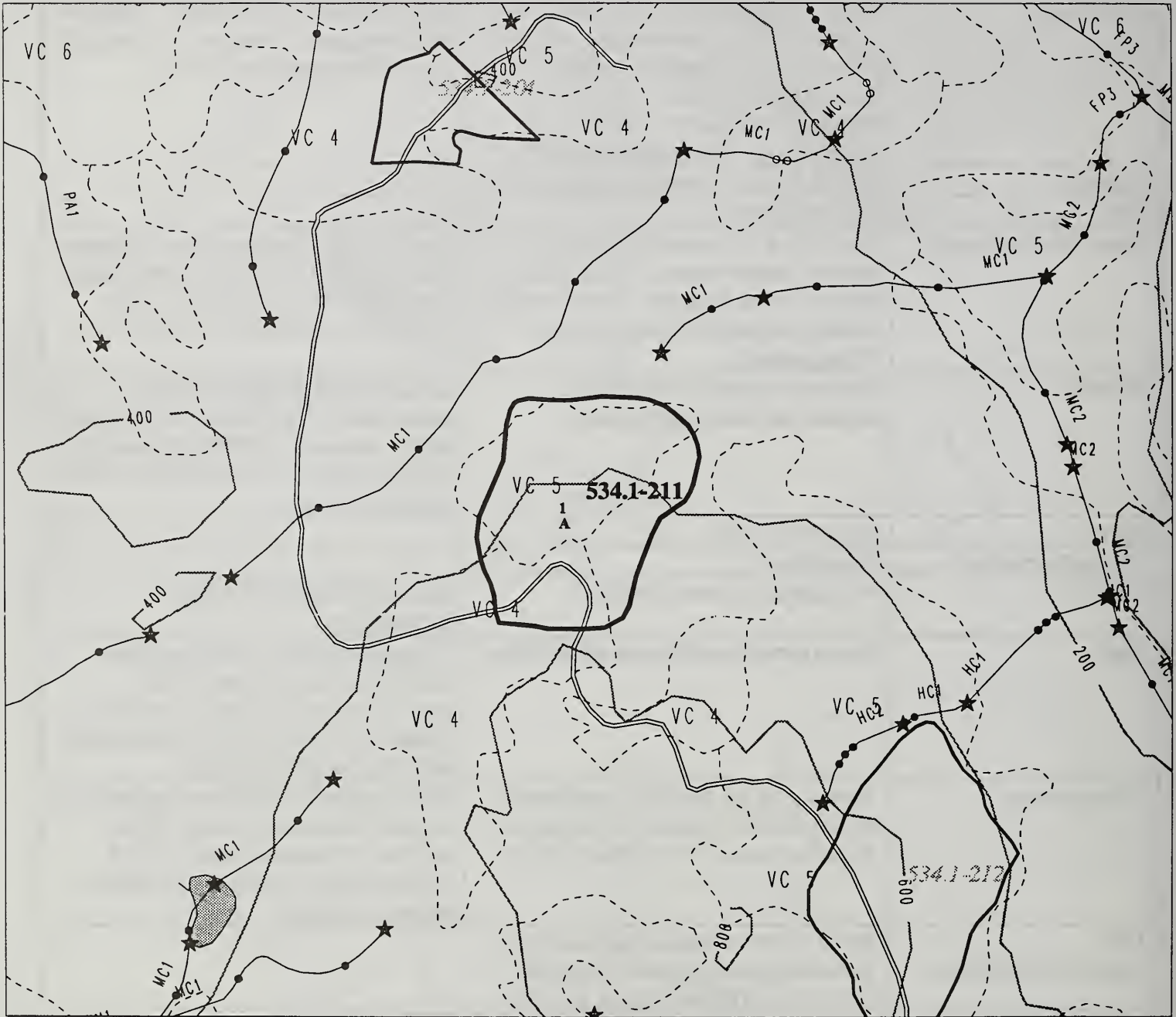
Resource Area	Concerns	Resolution
Silviculture	Heavy mistletoe infection in canopy with some infection to advanced regeneration. Salmonberry competition. Saturated soils. Areas of low site productivity. History of windthrow. Hemlock overstocking. Poor cedar regeneration.	Regeneration Harvest Type B. Minimize soil disturbance. Consider PCT within 20 yrs to enhance species diversity.
Fisheries	No fish-bearing streams in or near unit.	
Soils	No special concerns.	
Water Quality/Quantity	Small Class III stream originates just north of unit boundary in muskeg and flows N, away from unit. Class I stream crossing required to access unit (see Transportation).	Yard away from muskeg area and retain trees <12" dbh within 100' of boundary. Apply BMP 12.7, 12.11, 13.2, 13.3, 13.15, 14.6, 14.10, 14.14, 14.16, 14.17
Wildlife	Past harvest north of unit and non-commercial along east boundary.	Level 1 structure retention through maintenance of 100' wide retention area in northwest corner; 100' ITM on remainder of unit boundary. Close Road 65-79-05 following harvest.
Karst	No karst features.	
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	Unit is partially within state selected land.	Dropped north half of unit, which is within state selected land. Verify property boundary prior to final layout. Protect all known mineral improvements, such as mine claim markers.
Transportation	Accessed by Rd. 65-79-05, construction. to STA 296+50, required 50' radius curve at landing station 296+50 Rd 65-79-05.	Close Road 65-79-05 after completion of harvest. Reasonable access will be provided for mining claims. Class I stream crossing to access unit requires timing restrictions.
Unit Layout/Administration	Swing yarder w/ grapple recommended. Tailholds/guystumps poor in southern half of unit. Twisters may be required.	
Opportunities		

BMP's 12.7, 12.11, 13.2, 13.3, 13.15, 14.6, 14.10, 14.14, 14.16, 14.17.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 534.1-211

Acres: 35.4



- Project Boundary
- Unit 534.1-211
- Other Units
- Timber Type Boundary
- Eagle Nest Buffer (330ft)
- Existing Roads
- Proposed Roads
- Class I Stream
- Class IIa Stream
- Class IIb Stream
- Class III Stream

- Water
- Beach Fringe/Estuary
- Second Growth
- 200 ft contours

★ Potential Channel Type Change

F-179



March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 534.1-211

Harvest Volume : 21.8 MBF/acre

Acres : 35.4

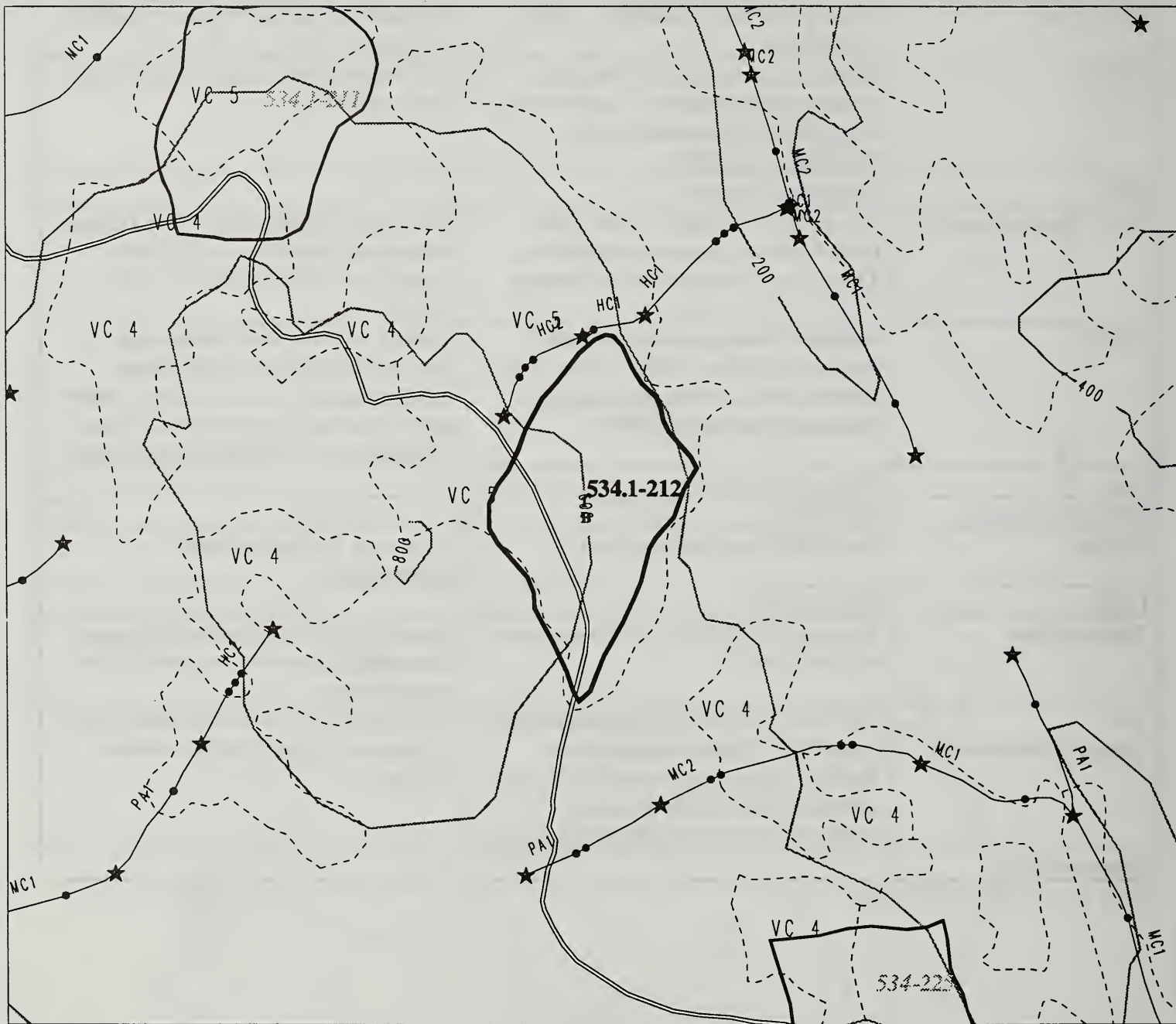
Resource Area	Concerns	Resolution
Silviculture	Areas of low site productivity. Cedar regeneration.	Regeneration Harvest Type A. Consider PCT within 20 yrs.
Fisheries	Class I stream along north boundary; numerous trout observed. Large woody debris important in creating pools. Temperature sensitive.	100' required buffer along Class I stream. Apply BMP 12.6.
Soils	No special concerns.	
Water Quality/Quantity	Low gradient. Shallow stream along north boundary; temperature sensitive. Trees on south side crucial for shading.	100' required buffer along Class I stream along north boundary. Apply timing restrictions. BMP 12.6, 12.11, 14.6, 14.10.
Wildlife	Maintain diversity and snag habitat in previously unaltered area. High-quality marten habitat. Meets parameters for high quality goshawk habitat.	Level 1 structure retention through harvest prescription and 100' stream buffer along northwest boundary. Survey unit for goshawks prior to final layout. Close Road 65-79-05 following harvest.
Karst	No karst resources.	
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires Rd. 65-79-05 to be constructed to STA 224+85.	Close Road 65-79-05 following harvest. Reasonable access will be provided for mining claims.
Unit Layout/Administration	100' tower with live skyline with haulback capabilities. Partial suspension not required. More profile should be run to determine the extent to which the northeast corner of the unit can be logged.	Add temporary spur to north through unit to improve logging if profiles are not adequate.
Opportunities		

BMP 12.6, 12.11, 14.6, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 534.1-212

Acres: 37.3



- Project Boundary
- Unit 534.1-212
- Other Units
- Timber Type Boundary
- Eagle Nest Buffer (330ft)
- Existing Roads
- Proposed Roads
- Class I Stream
- Class IIa Stream
- Class IIb Stream
- Class III Stream

- Water
- Beach Fringe/Estuary
- Second Growth
- 200 ft contours

★ Potential Channel Type Change

F-181



March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 534.1-212

Harvest Volume :26.7 MBF/acre

Acres : 37.3

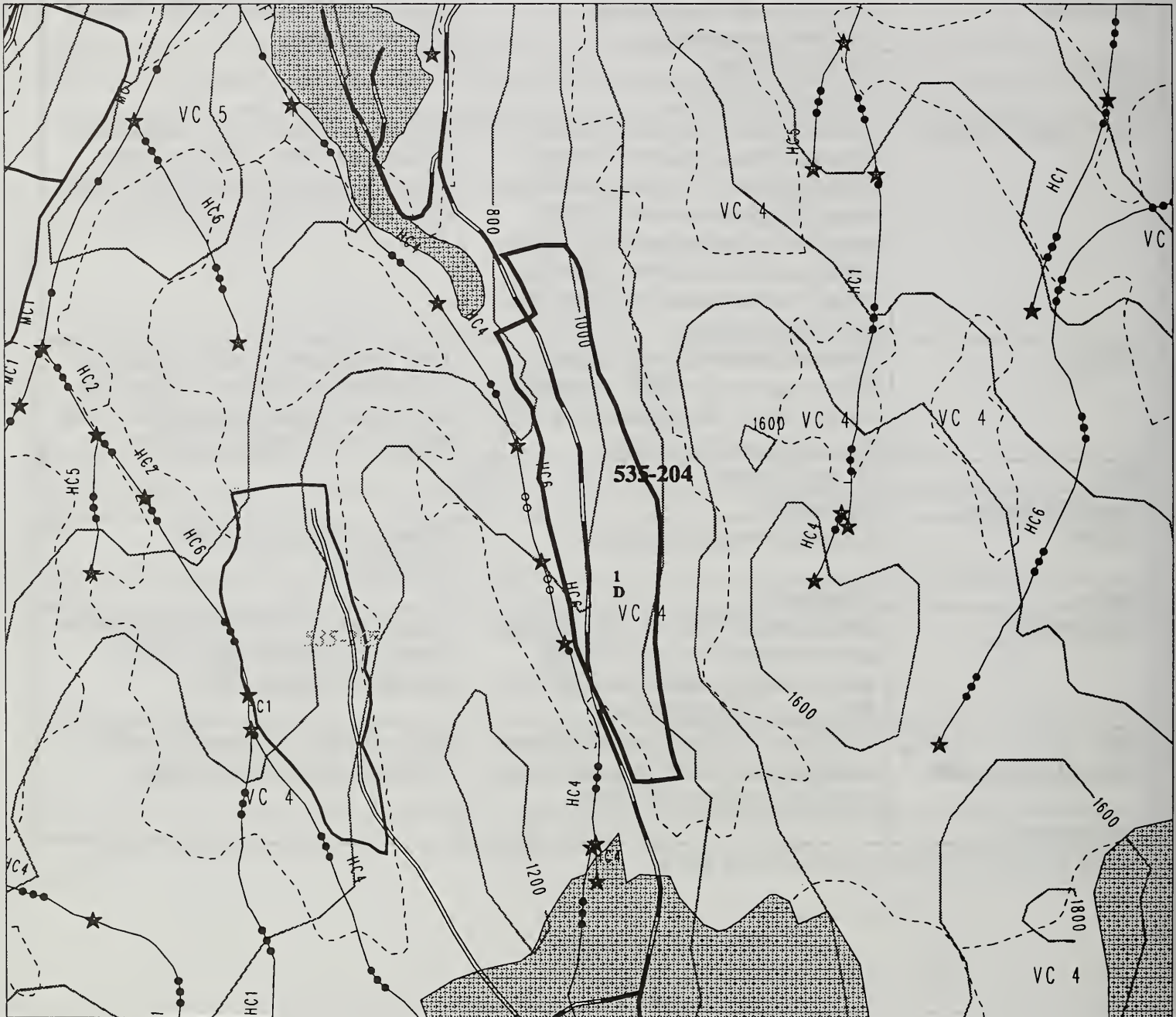
Resource Area	Concerns	Resolution
Silviculture	Areas of low site productivity. Yellowcedar regeneration.	Regeneration Harvest Type B. Consider PCT within 20 yrs.
Fisheries	See water quality.	
Soils	No special concerns.	
Water Quality/Quantity	Class III stream along north boundary has deposits of fine sediment in channel; potential to deliver to downstream Class I stream. Large woody debris (LWD) important in trapping sediment. Retain some trees as future LWD. Class IIa stream crossing required to access unit (see Transportation).	Put north unit boundary on topographic break above stream. Fall away from stream. Apply timing restriction. BMP's 12.6, 12.7, 13.2, 12.11, 14.6, 14.10, 14.17.
Wildlife	Previously unaltered area - maintain diversity and snag habitat. High-quality marten habitat. Meets parameters for high quality goshawk habitat.	Level 1 structure retention through 100' ITM along unit boundary. Survey unit for goshawks prior to final layout. Close Road 65-79-05 following harvest.
Karst	No karst features.	
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Mainline Road 65-79-05 passes through unit - no spurs necessary. Class IIa stream crossing to access unit from 534-225; apply timing restrictions.	Close Road 65-79-05 after completion of harvest. Reasonable access will be provided for mining claims.
Unit Layout/Administration	Large tower with slackline and shotgun configurations, partial suspension except in extreme northern part of unit.	Rig trees inside unit boundary and tag chokers to log north part of unit.
Opportunities		

BMP's 12.6, 12.7, 12.11, 13.2, 14.6, 14.10, 14.17.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 535-204

Acres: 39.2



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 535-204 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 535-204

Harvest Volume : 11.8 MBF/acre

Acres : 39.2

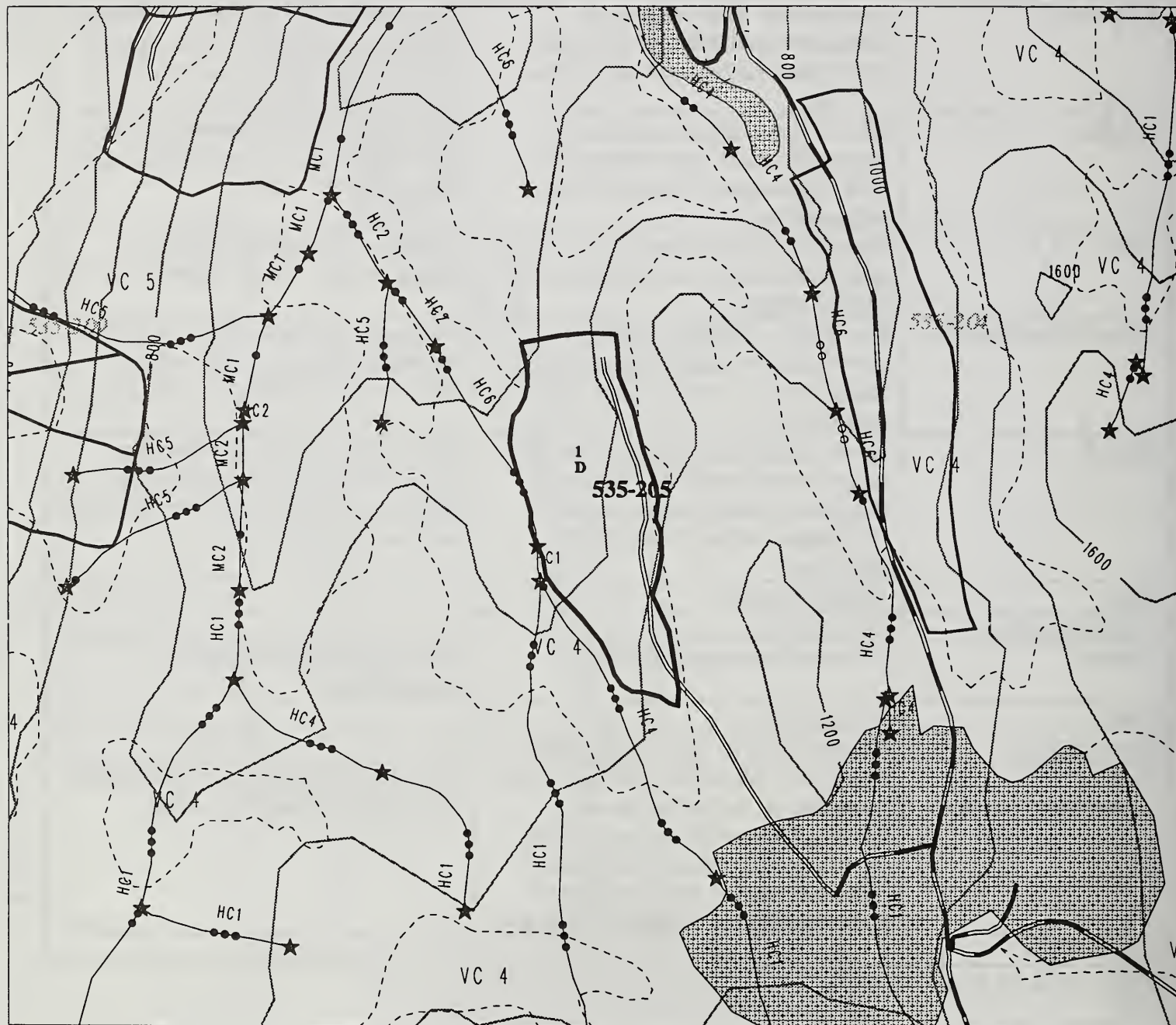
Resource Area	Concerns	Resolution
Silviculture	Overstocking. High amounts of salmonberry and brush. Shallow and rocky soils. Yellowcedar regeneration.	Regeneration Harvest Type D; retention area in southern portion of unit. Retain some yellowcedar advanced regeneration. Consider PCT within 20 yrs.
Fisheries	Class II stream along west boundary - numerous areas of mass wasting along steep upper banks. Prevent increased sedimentation.	100' buffer on Class II stream puts west unit boundary above steep slopes. Apply BMPs 12.6, 12.7, 13.5.
Soils	High MMI soils and steep slopes. Some mass wasting along west edge adjacent to Class II stream.	Achieve at least partial suspension throughout unit. Apply BMPs 13.5, 13.9
Water Quality/Quantity	See fisheries. Prevent accelerated mass movement along upper banks of Class II stream. Retain trees to maintain root structure.	100' buffer on Class II stream puts west unit boundary above steep, unstable slopes. Apply BMPs 12.7, 13.5, 14.8.
Wildlife	Retain snags and maintain integrity of riparian area along west unit boundary. Bear den in southeast corner of unit. Watershed is below 275 snags/100 ac snag levels.	Concern Level 2 structure retention through the harvest prescription, 100' buffer along Class II, and 4-acre retention area around bear den.
Karst	No karst features.	
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	On existing Road 3075 - no concerns.	
Unit Layout/Administration	Swing yard, deadmen or rock bolts may be required at the landing locations. Partial suspension should be available over the entire unit (and is required). Additional profiles will be required to insure partial suspension over whole unit.	Modify unit boundary to exclude wildlife retention area during final layout.
Opportunities		

BMP's 12.6, 12.7, 13.5, 13.9, 14.8.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 535-205

Acres: 33.9



- Project Boundary
- Unit 535-205
- Other Units
- Timber Type Boundary
- Eagle Nest Buffer (330ft)
- Existing Roads
- Proposed Roads
- Class I Stream
- Class IIa Stream
- Class IIb Stream
- Class III Stream

- Water
- Beach Fringe/Estuary
- Second Growth
- 200 ft contours

★ Potential Channel Type Change

F-185



March 03, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 535-205

Harvest Volume : 11.9 MBF/acre

Acres : 33.9

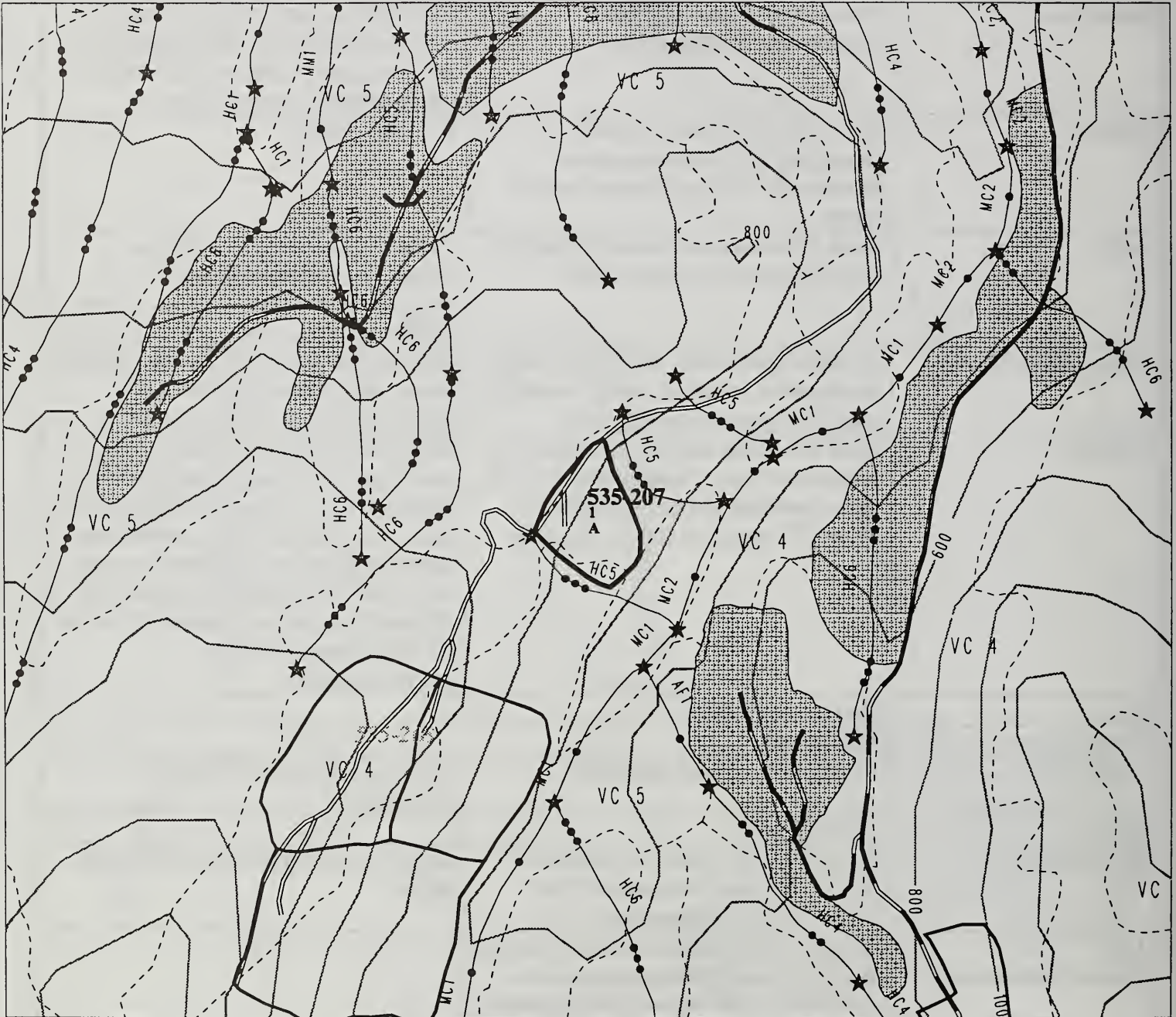
Resource Area	Concerns	Resolution
Silviculture	Hemlock overstocking. Cedar regeneration. Unstable soils.	Regeneration Harvest Type D through site-specific retention areas identified by field personnel. Consider PCT within 20 yrs. to enhance species diversity
Fisheries	Potential for increased sediment transported to fish-bearing stream downstream of Class III in southwest corner.	See water quality.
Soils	Small slides on upper banks of Class III stream in southwest corner of unit.	Fall and yard away from this area. Locate west unit boundary on topographic break above creek. Apply BMPs 12.7, 13.2, 13.5, 13.16
Water Quality/Quantity	Unstable upper banks on Class III stream in southwest corner of unit. Potential for accelerated erosion and sediment.	Fall and yard away from stream. Retain trees leaning toward stream. Apply BMPs 12.7, 13.5, 14.10, 14.8, 14.13
Wildlife	Great blue heron nest tree identified in south end of unit. Potential goshawk area due to proximal sitings. Watershed is below 275 snags per 100 ac. snag level.	Maintain 200' buffer around nest tree. Avoid nest tree if hanging skyline roads through buffer. Survey unit for goshawks prior to final layout. The retention area identified along the northwest boundary, and a 100' ITM along the remainder of the west boundary will maintain Concern Level 2 structure retention recommendations.
Karst	No karst resources.	
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Road 65-79-25 crosses 6-7 stations of muskeg and has 9-10 stations of full bench over 46 stations of road.	Survey unit for goshawks prior to final layout.
Unit Layout/Administration	Swing yarder recommended due to limited guy stumps and yarding distances less than 1000'. May require tailholds across Class III stream for partial suspension on some skyline roads. Partial suspension not required due to low soils concerns.	
Opportunities		

BMP's 12.7, 13.2, 13.5, 13.16, 14.8, 14.10, 14.13.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 535-207

Acres: 8.6



- Project Boundary
- Unit 535-207
- Other Units
- Timber Type Boundary
- Eagle Nest Buffer (330ft)
- Existing Roads
- Proposed Roads
- Class I Stream
- Class IIa Stream
- Class IIb Stream
- Class III Stream

- Water
- Beach Fringe/Estuary
- Second Growth
- 200 ft contours

★ Potential Channel Type Change

F-187



March 03, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 535-207

Harvest Volume : 14.7 MBF/acre

Acres : 8.6

Resource Area	Concerns	Resolution
Silviculture	Hemlock overstocking. Cedar regeneration. Stand edges susceptible to windthrow.	Regeneration Harvest Type A. Consider PCT within 20 yrs. to enhance species diversity.
Fisheries	Class III stream to east of unit - poor timber and muskeg in valley bottom creates a 100' buffer.	Retain 100' buffer as created by unit layout.
Soils	No special concerns.	
Water Quality/Quantity	Four very small, stable Class III streams in and adjacent to unit. Good sediment buffering provided by low gradient area downslope.	Remove logging-related debris (CT6.51). BMP 12.7, 12.11, 13.15, 14.3, 14.10
Wildlife	Watershed below 275 snags/100 ac snag level.	Structure retention through 100' buffer on Class III stream. Additional structure retention will be implemented on remaining units within this watershed. Close Road 65-79-13 following harvest.
Karst	No karst features.	
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires 43 stations of Road 65-79-13 plus 3 stations of spur.	Close Road 65-79-13 after completion of harvest.
Unit Layout/Administration	Swing yarder recommended, 10-acre unit. Tailholds border muskeg, but good tail trees exist. May require tiebacks. Partial suspension no problem.	
Opportunities		

BMP's 12.7, 12.11, 13.9, 13.15, 14.3, 14.10.

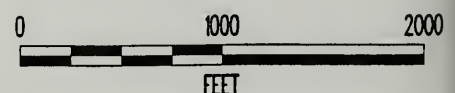
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 535-208

Acres: 69.3



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 535-208 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 535-208

Harvest Volume : 17.7 MBF/acre

Acres : 69.3

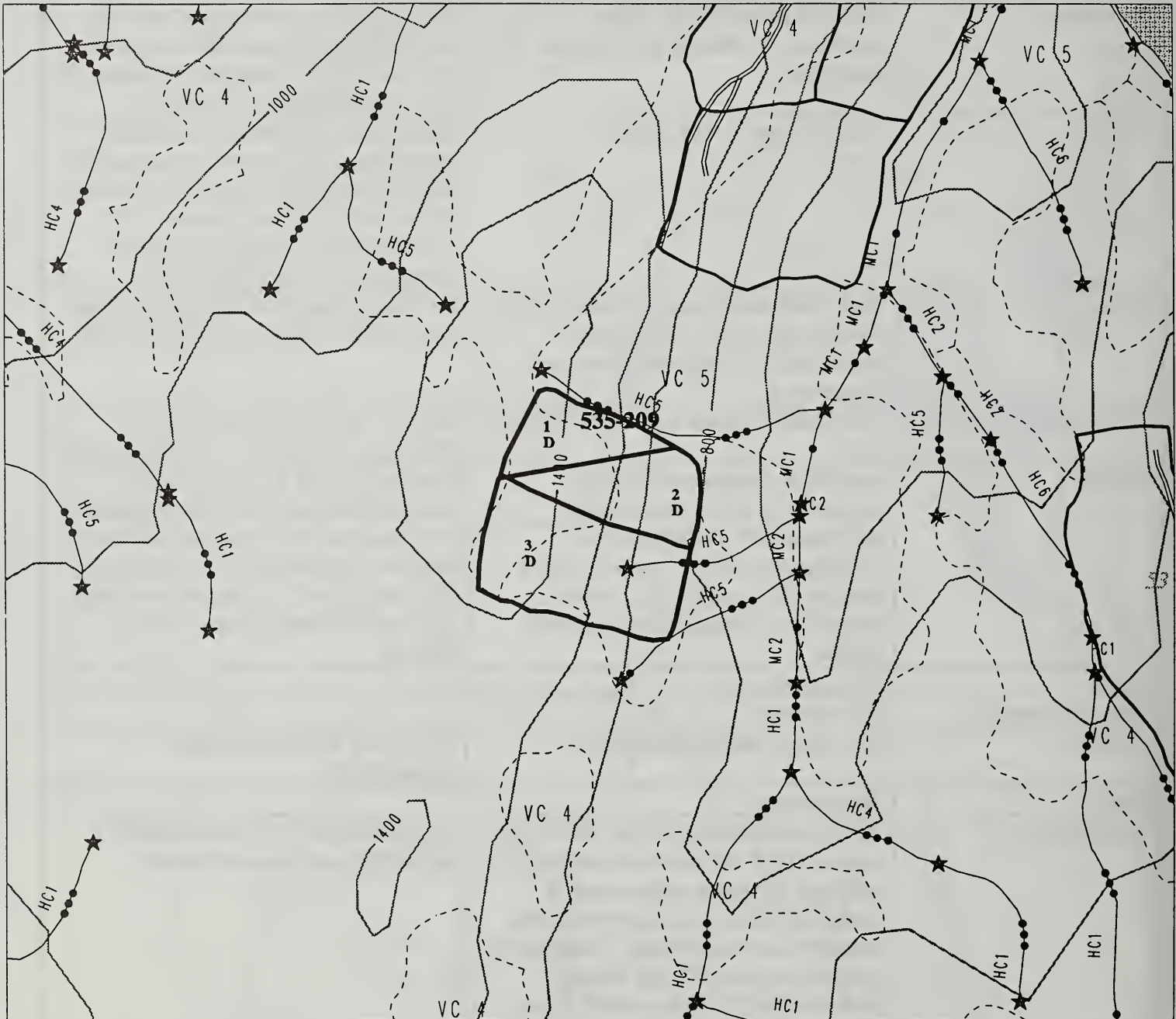
Resource Area	Concerns	Resolution
Silviculture	Hemlock overstocking. Cedar regeneration. Shallow soils. Slope instability.	Regeneration Harvest Type D through site-specific retention areas identified by field personnel. Consider PCT within 20 yrs. to enhance species diversity.
Fisheries	Class I stream to east of unit.	Muskegs and noncommercial forest in valley bottom creates wider than the 100' required buffer along majority of stream. SE corner is 100' from stream. A 50' selective harvest buffer also required along stream. Apply BMP 12.6
Soils	High MMI soils in central portion of unit where slopes >60%. Thin soils, numerous rock bluffs - minimize soil disturbance.	Achieve at least partial suspension where slopes >60%. Apply BMPs 13.5, 13.9
Water Quality/Quantity	One Class III stream in unit - not incised, stable.	Remove any logging-related debris (CT6.51). BMP 12.7, 12.11, 14.8, 14.10
Wildlife	Reduction in structural diversity. Watershed is below snag density guidelines (275 snags/100 acres). Additional roading into an area with a high existing road density. Meets parameters for high quality goshawk habitat.	Concern Level 3 structure retention through designation of 3 retention areas in addition to 100' stream buffer. Survey unit for goshawks prior to final layout. <u>Close Road 66-79-13 and all associated spur roads following completion of harvest.</u>
Karst	No karst features.	
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires construction of Rd. 65-79-13 to station 82+20 and two spurs totaling 10 stations. Minimum radius curve at station 51+80 requires curve widening; extensive cut into hillside. 37 stations of road beyond unit 535-207 contain approximately 5 stations of full bench, but slopes do not exceed 80%	Close Road 65-79-13 and associated spurs after completion of harvest.
Unit Layout/Administration	Large tower with shotgun and some slackline rigging recommended. Some swing yarding necessary. Hanging across Class I stream may be necessary for some roads.	Modify unit boundary to exclude wildlife retention areas during final layout.
Opportunities		

BMP's 12.7, 12.11, 13.5, 13.9, 14.8, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 535-209

Acres: 36.8



- Project Boundary
- Unit 535-209
- Other Units
- Timber Type Boundary
- Eagle Nest Buffer (330ft)
- Existing Roads
- Proposed Roads
- Class I Stream
- Class IIa Stream
- Class IIb Stream
- Class III Stream

★ Potential Channel Type Change

- Water
- Beach Fringe/Estuary
- Second Growth
- 200 ft contours



F-191

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 535-209

Harvest Volume : 17.4 MBF/acre

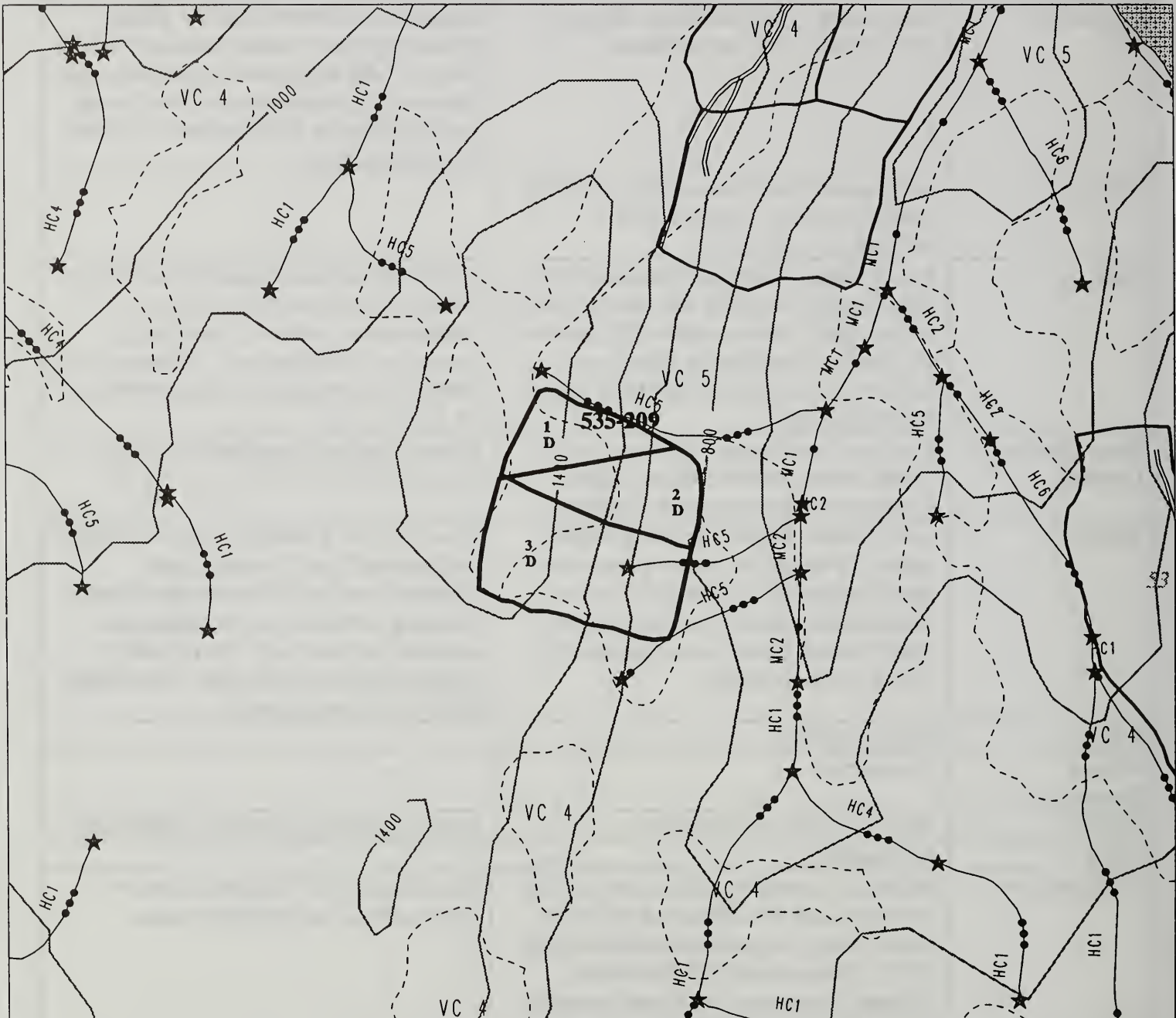
Acres : 36.8

Resource Area	Concerns	Resolution
Silviculture	Steep slopes. Slope instability. Hemlock overstocking. Cedar regeneration.	Regeneration Harvest Type D. Require partial suspension. Retain non-merchantable trees <12' dbh along bottom (east) boundary. Site-specific retention areas within the unit were identified by field personnel. Consider PCT within 20 yrs.
Fisheries	Low potential for sediment transport to fish stream east of unit - ample sediment buffering in valley bottom.	
Soils	Recent slump to east of unit occurred where seeps emerge; older slide also observed south of this slump. Seeps emerge ~650' elevation; very wet, with high risk of failure here. Majority of unit contains high MMI soils with >60% slope.	Put bottom line (east boundary) at 700' elev. and above to retain trees in very wet, unstable area. Achieve at least partial suspension throughout unit. (Helicopter will achieve full suspension.) Apply BMPs 13.2, 13.5, 13.9, 13.15.
Water Quality/ Quantity	Five seep channels emerge in lower portion of unit (some outside of unit as flagged). Evidence of debris movement, instability.	Remove logging-related debris (CT6.51). Apply BMPs 12.7, 13.5, 12.11, 14.10.
Wildlife	Loss of dense snag and diverse structural habitat. Watershed is currently below snag density guidelines (275 snags/100 acres). Increased road density in an area already highly roaded. Meets parameters for high quality goshawk habitat.	Concern Level 3 structure retention through buffer along Class III stream (north boundary), and west of road right-of-way including a retention area extending into center of unit (see map). Survey unit for goshawks prior to final layout. Close Road 65-79-13 following harvest.
Karst	No karst features.	
Visuals/ Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Helicopter - potential landing areas on large benches in unit 535-208 on Rd. 65-79-13. Ground based - requires construction of Rd. 65-79-13 beyond unit 535-208 which includes: 5 stations of maximum favorable grade; 13 stations of full bench construction, 2.5 stations through severe bluffs. Extensive rock blasting of conglomerate will be required.	Close Road 65-79-13 after completion of harvest, if unit not helicopter logged.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 535-209

Acres: 36.8



- Project Boundary
- Unit 535-209
- Other Units
- Timber Type Boundary
- Eagle Nest Buffer (330ft)
- Existing Roads
- Proposed Roads
- Class I Stream
- Class IIa Stream
- Class IIb Stream
- Class III Stream

- Water
- Beach Fringe/Estuary
- Second Growth
- 200 ft contours

★ Potential Channel Type Change

F-193



March 03, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 535-209 (Continued)

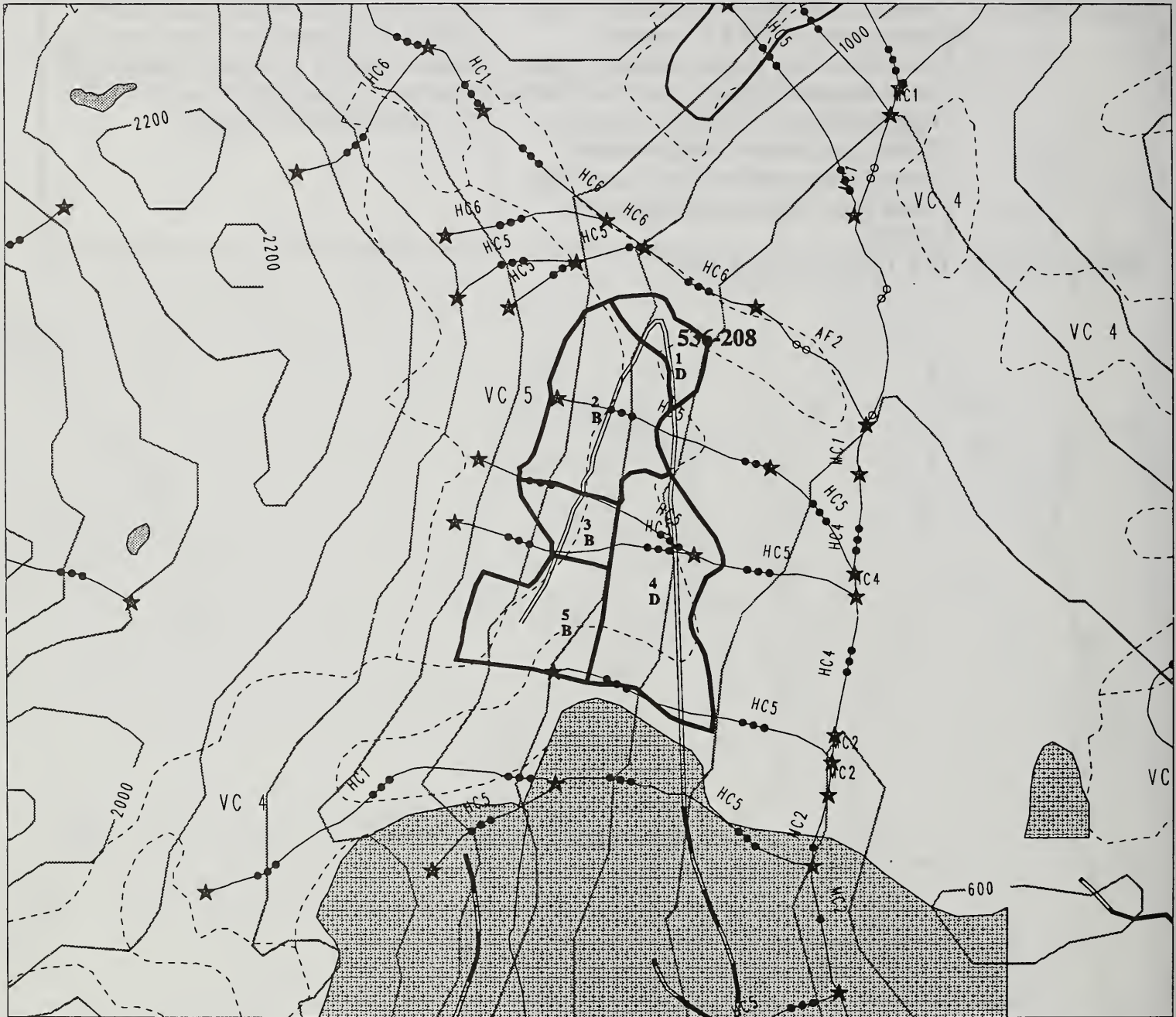
Unit Layout/ Administration	<u>Helicopter logging recommended</u> or large tower if ground based systems used. Large tower/yarder with M.S.P. carriage capabilities. Guy stumps marginal for large tower, tiebacks necessary. Requires tailholds rigged across draw with 2600'± of skyline. Tailholds will require extensive tieback networks due to shallow, wet soils on slope across draw. Class I stream crossed by skyline.	Helicopter log unit. Modify unit boundaries to exclude wildlife retention areas as noted on map. Consider adding a group select, partial cut setting to the east. Land logs on bench areas in unit 535-208, on Rd. 65-79-13. Apply BMPs 13.5 and 13.9
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BMP's 12.7, 12.11, 13.2, 13.5, 13.9, 13.15, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 536-208

Acres: 60.0



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|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 536-208 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 536-208

Harvest Volume : 15.0 MBF/acre

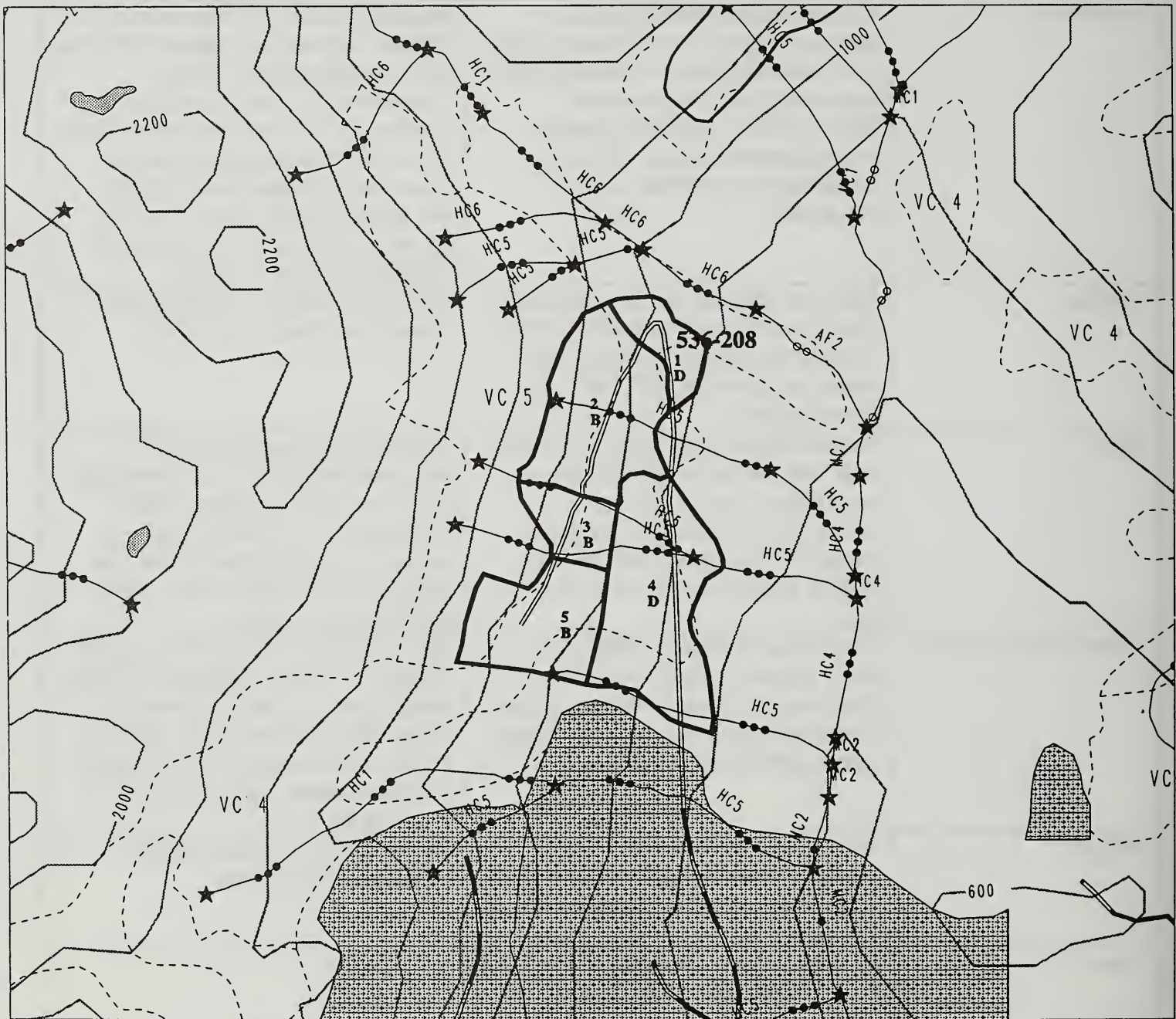
Acres : 60.0

Resource Area	Concerns	Resolution
Silviculture	Unmerchantable (<8m/ac) areas in southeast portion. Encroachment of Sitka alder and salmonberry avalanche chutes onto adjacent suitable forestland. Saturated soils. Windthrow potential. Poor regeneration in east 1/3 of unit. Yellowcedar regeneration at upper elevations.	Regeneration Harvest Type B for three settings; Regeneration Harvest Type D in two remaining settings. Avoid unmerchantable areas where practical. Achieve partial suspension in west half of unit to minimize soil disturbance and reduce chance of alder encroachment. Site-specific retention areas within the unit were identified by field personnel. Consider PCT within 20 yrs.
Fisheries	Class II stream east of unit - numerous Class III tributaries in unit with potential for sediment transport. Muskeg, poor timber area provides >100' buffer on Class II stream.	See water quality. >100' buffer due to timber stand change. BMP 12.7
Soils	Shallow organic soils in majority of unit, high MMI. Minimize disturbance on steep slopes to prevent loss of productivity. Evidence of past debris slides in streams to north of unit. Also shallow soils in west central portion of unit.	Achieve at least partial suspension throughout majority of unit - particularly in west portion where slopes >60%. Locate north unit boundary south of unstable area. Retain trees along west boundary where shallow soils. Apply BMPs 13.2, 13.5, 13.9
Water Quality/Quantity	Three Class III streams within unit have plugs of gravel, cobble over bedrock. High potential for de-stabilization if logs yarded across channel. Five other small, stable Class III streams in unit.	Split yard portion of unit where plugs of sediment in channel. Minimize crossings in upper portion. Protect channel with bumper logs where necessary. Remove logging-related debris (CT6.51) from all designated stream courses. BMP 12.7, 13.16, 14.10
Wildlife	Watershed currently below minimum snag density due to past harvest. South unit boundary adjacent to large previously harvested area.	Concern Level 3 structure retention through 3 retention areas.
Karst	No karst features. Results of Phase 1 and 2 karst studies show unit drains to karst. No concerns.	
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Rd. 65-78-32.1 (22 stations) + 8% switchback, 5 stations of full bench.	Investigate possible road access from end of 1500900 road. Close road upon completion of harvest.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 536-208

Acres: 60.0



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 536-208 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-197

March 03, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 536-208 (Continued)

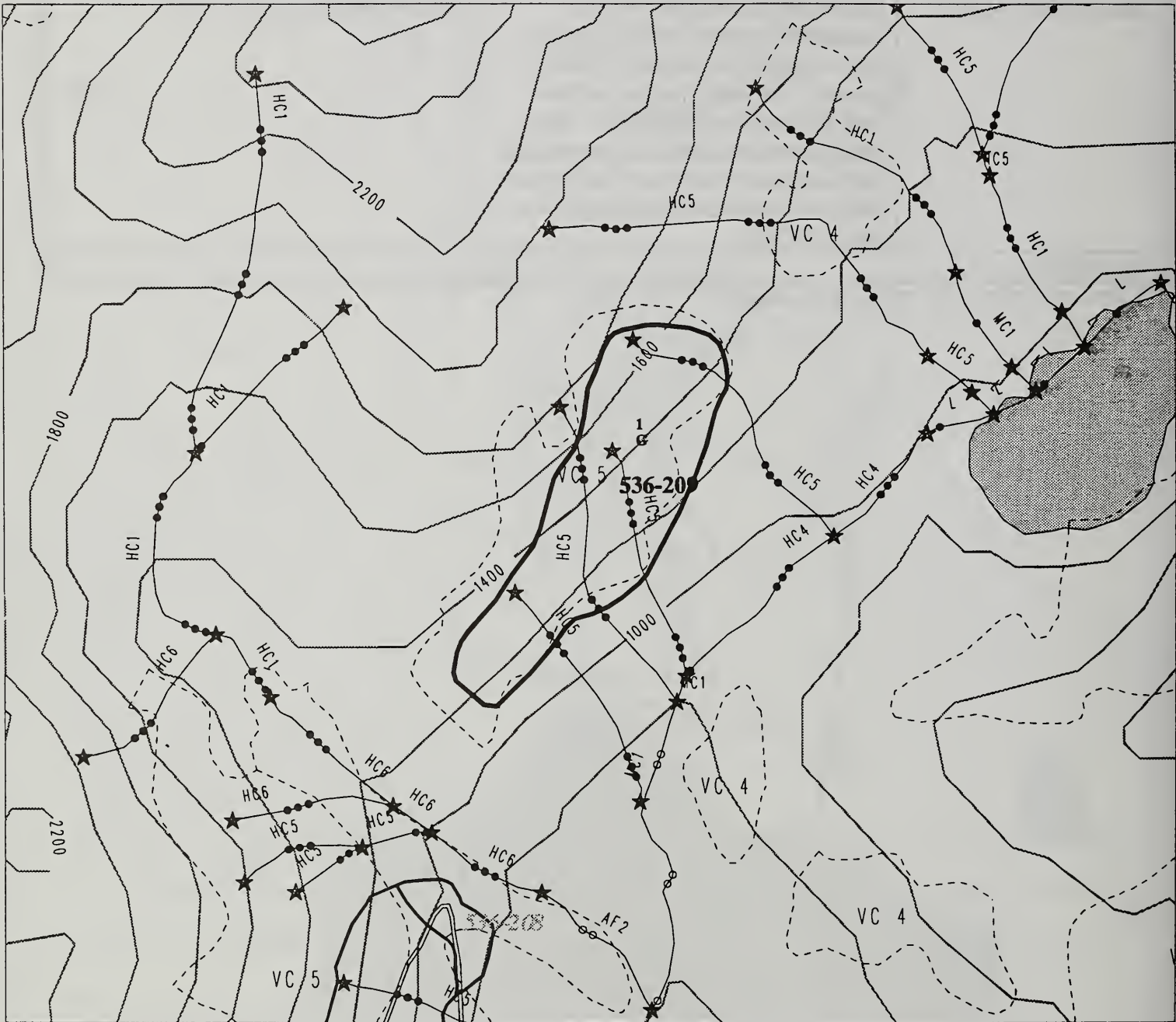
Unit Layout/Administration	Swing yard eastern portion of unit to split yard creeks in this area. Partial suspension required in west portion of unit and should be available. West portion to be yarded with a 100' tower with slack pulling capabilities. More profiles will be required to ensure partial suspension in the west portion of the unit. Partial suspension not required in east portion of unit.	Modify unit boundary along east side to exclude wildlife retention area.
Opportunities		

BMP's 12.7, 13.2, 13.5, 13.9, 13.16, 14.10.

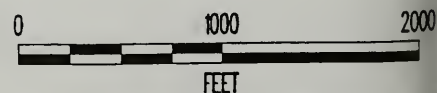
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 536-209

Acres: 39.8



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 536-209 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 536-209

Harvest Volume : 20.1 MBF/acre

Acres : 39.8

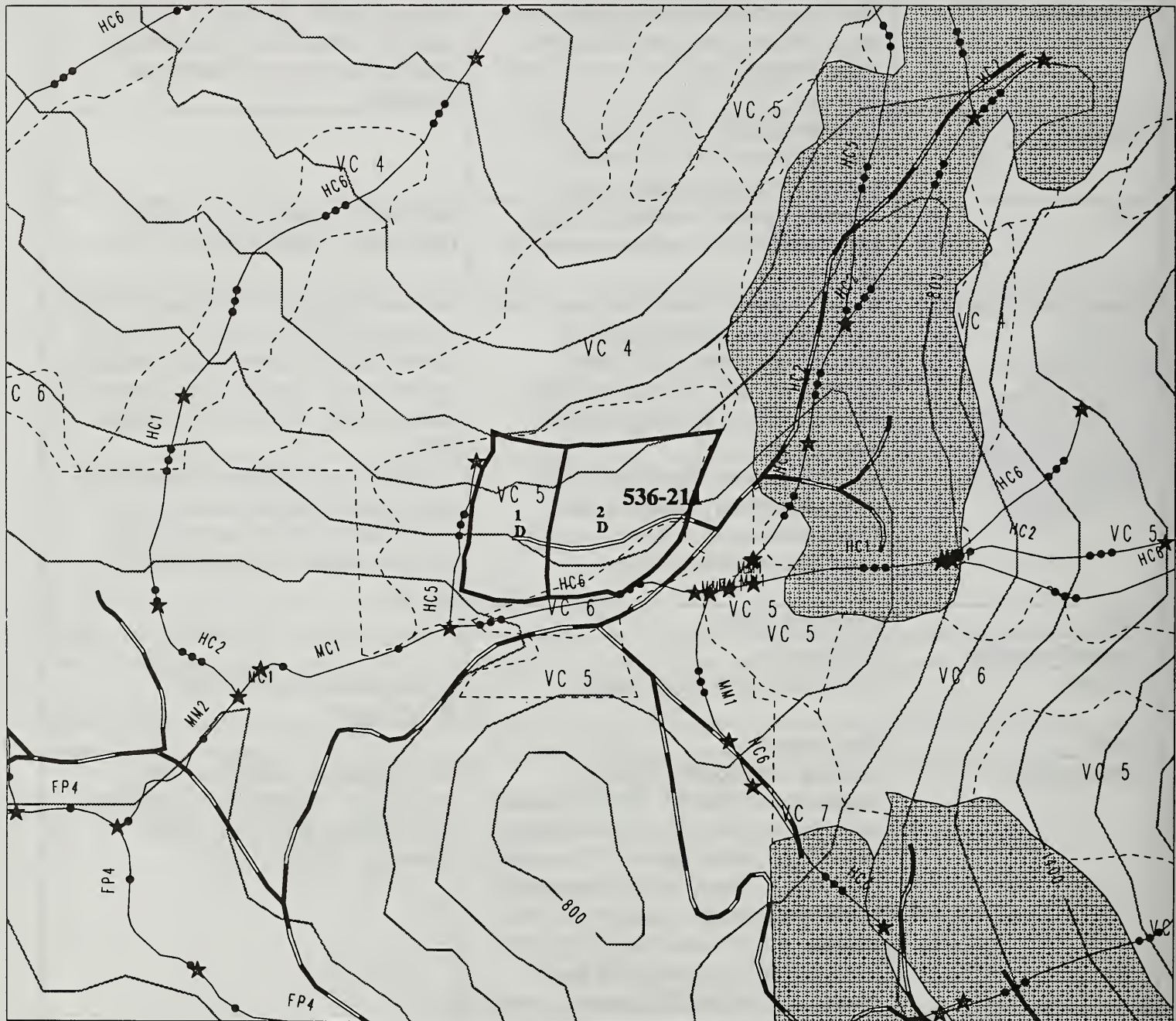
Resource Area	Concerns	Resolution
Silviculture	High elevation mountain hemlock site in upper portion of unit, possible sparse regen. Steep, wet slopes. Areas of low site index.	Harvest Type G. Helicopter logging; retain 30% basal area throughout unit seedling establishment and thermal protection.
Fisheries	See water quality. >100' buffer from Class II stream east of unit due to extensive muskeg in valley bottom.	
Soils	Steep slopes, shallow soils, high MMI soils particularly in northwest corner of unit.	Achieve full suspension throughout (helicopter). Apply BMPs 13.5, 13.9.
Water Quality/Quantity	Six small, stable Class III streams in unit. Ample sediment buffering prior to entering fish stream. One Class III stream along north boundary is slightly incised; evidence of past debris flow down channel.	Remove logging-related debris (CT6.51). Locate north unit boundary to south of incised Class III stream along top of inner gorge to retain windfirm trees adjacent to stream. Apply BMPs 12.7, 13.2, and 13.5.
Wildlife	Potential goshawk use. Unconfirmed goshawk sighting proximal to unit. Watershed currently below snag density guidelines due to past harvest.	Concern Level 3 structure retention will be obtained by partial cutting the unit, and retaining 30% of the basal area. Conduct goshawk survey prior to final layout.
Karst	No karst features.	
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Landing for helicopter logging at intersection of spur Rd. 65-78-32 requires extensive cuts and fills to obtain adequate area. Flight path slopes are 27% or less downhill. If ground based systems used: (1) 50' span over 25' v-notch with rock blasting on both sides required; (2) 16%-18% favorable grade required past V-notch to access unit; (3) numerous stream crossings, some requiring extensive channel modification; and (4) south end of unit not accessed by road.	Road flagged on ground has been evaluated as infeasible due to extreme grade, slope stability, and stream crossings. Helicopter log.
Unit Layout/Administration	Helicopter logging recommended. Conventional logging has difficulties with partial suspension; would require sidehill logging to cut bank road due to lack of runoff. Road grade in unit 16-18% favorable. Dangerous logging. Numerous streams in unit.	Helicopter log.
Opportunities		

BMP's 12.7, 13.2, 13.5, 13.9.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 536-211

Acres: 29.6



- | | | | |
|--|---------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 536-211 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |

★ Potential Channel Type Change

F-201



March 03, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 536-211

Harvest Volume : 15.5 MBF/acre

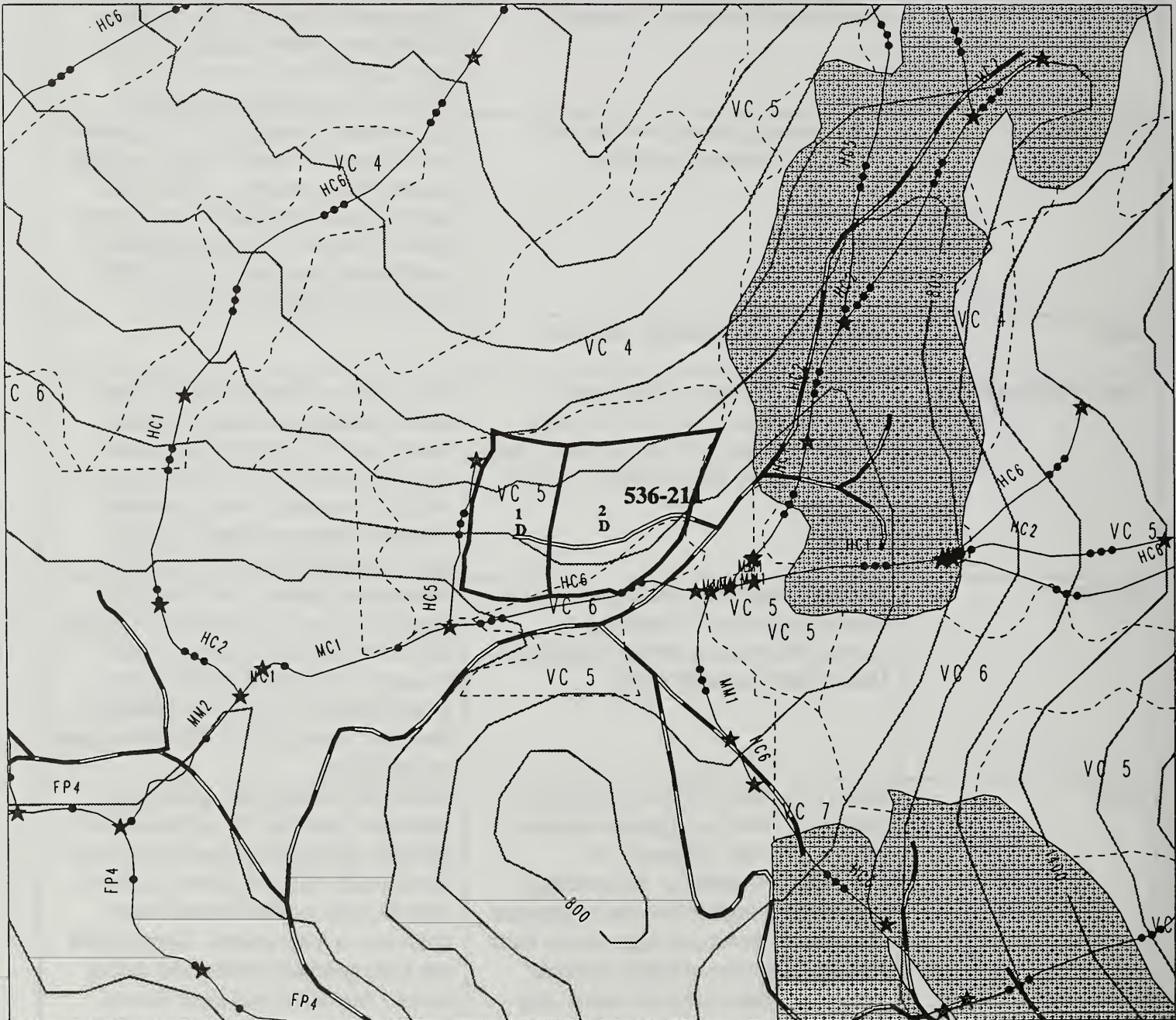
Acres : 29.6

Resource Area	Concerns	Resolution
Silviculture	Salmonberry incursions. Thin soils.	Regeneration Harvest Type D; retain buffers around karst features. Feather upper edge of unit for visuals. PCT within 20 yrs. should be considered.
Fisheries	Class I stream just southwest of unit - concern for increased sediment.	Planned road crossing of Class I stream was dropped for better location requiring no new stream crossing. Will require replacing previously pulled bridge over Class III stream. Timing requirements should be implemented. Apply BMPs 12.7, 14.6, 14.14, 14.16, 14.17.
Soils	No evidence of instability - no special concerns.	
Water Quality/Quantity	Large Class III stream along south boundary flows directly into a Class I stream (waterfall just west of unit). Class III stream along west boundary - shallow V-notch.	100' buffer on Class III stream along south boundary due to large size of stream and close proximity to Class I stream (increased to 200' buffer due to wildlife concerns). Locate west unit boundary along east side of Class III creek. Apply BMPs 12.6, 12.7 13.2.
Wildlife	Maintain integrity of riparian area. Past harvest east of unit. Watershed is currently below snag density guidelines. Unconfirmed goshawk siting.	Implement Concern Level 3 structure retention by locating south unit boundary 200' from Class III stream and west boundary 100' from Class III stream. Type D harvest will provide additional structure. Survey unit for goshawks prior to final layout.
Karst	Based on results of Phase 1 and 2 karst studies, this unit is mapped as moderate vulnerability due to presence of contributing watershed. Vulnerability designated as high (1994) due to presence of very well-developed, high-density karst features (sinkholes, solution channels, vertical solution shafts and caves), and Class I streams. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Avoid construction and yarding over sinkholes. Provide 100' buffers around all caves, vertical shafts and insurgences. Directionally fell away from significant karst features (caves, vertical shafts, sinkholes, or insurgences). Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers.
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 536-211

Acres: 29.6



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 536-211 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-203

March 03, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 536-211 (Continued)

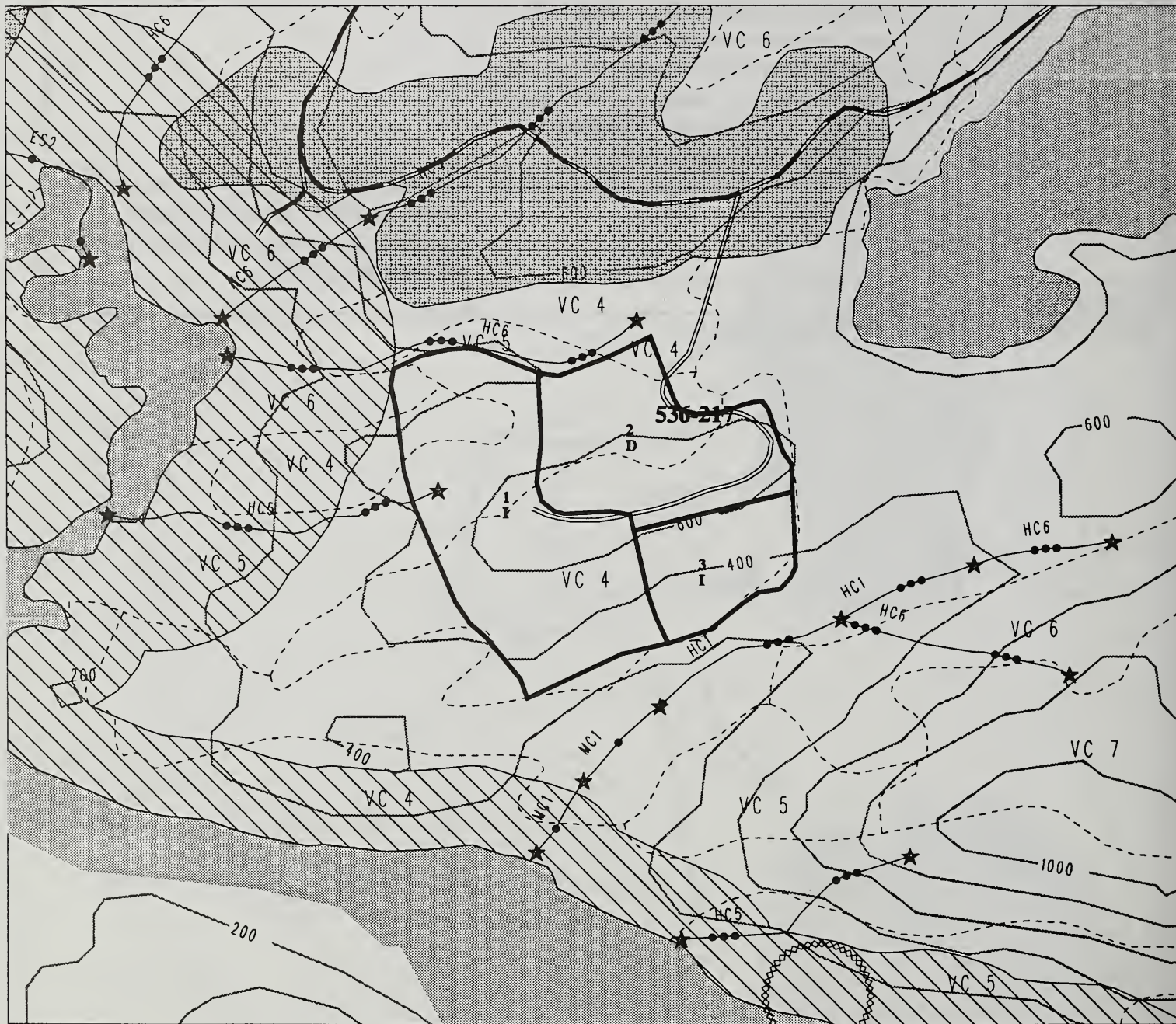
Transportation	Requires use of existing spur plus 6 stations of unflagged spur. Bridge (60' span) has been removed from existing spur. Easy to moderate construction on extension of spur. Suggest construction of spur to a point close to west boundary to prepare access to future units.	Close road upon completion of harvest.
Unit Layout/Administration	Large tower with grabinski configuration or highlead.	Modify west unit boundary to retain 100' buffer on stream to help meet snag retention guidelines, and exclude harvest around cave entrance.
Opportunities		

BMP's 12.6, 12.7, 13.2, 14.6, 14.14, 14.16, 14.17.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 536-217

Acres: 90.1



- Project Boundary
- Unit 536-217
- Other Units
- Timber Type Boundary
- Eagle Nest Buffer (330ft)
- Existing Roads
- Proposed Roads
- Class I Stream
- Class IIa Stream
- Class IIb Stream
- Class III Stream

- Water
- Beach Fringe/Estuary
- Second Growth
- 200 ft contours



★ Potential Channel Type Change

F-205

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 536-217

Harvest Volume : 10.4 MBF/acre

Acres : 90.1

Resource Area	Concerns	Resolution
Silviculture	Steep slopes. Shallow soils. Overstocking.	Harvest Types D & I. Partial suspension to protect soil and advanced reproduction.
Fisheries	Class II stream that flows into a Class I stream is located south of unit. >100' buffer is retained due to muskeg.	BMP's 12.6, 14.10, 14.17
Soils	Steep slopes. Shallow soils. Bluffs on upper portion of unit.	Achieve at least partial suspension to protect shallow soils. BMPs 12.7, 13.5, 13.9
Water Quality/Quantity	Class III stream along north boundary goes subsurface (see karst).	
Wildlife	Muskegs along south unit boundary - high wildlife use area. Calder Lake and muskeg complex northeast of unit. Located within an Project-defined wildlife corridor.	Concern Level 1 structure retention. Retain forested area 50'-70' wide between south boundary and muskeg; retain a 100' buffer on muskegs west of Calder Lake. Harvest Types D & I will retain structure.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to numerous, extremely well-developed karst features (sinkholes, solution channels, grikes), steep slopes, proximity to Class I stream, insurgence, and two cave entrances located just west of boundary. Stream along north boundary goes subsurface; resurges ~900' downslope along a dike. Proposed access road from Rd. 29 crosses sinkholes. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Avoid construction over sinkholes and grikes. Directional fell away from sinkholes. Partial suspension NE setting. To reduce potential sedimentation of karst features, helicopter log, using Harvest Type I, the west and SE settings. Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers. Recommend monitoring to determine effectiveness of partial suspension and individual tree selection at protecting thin soils on steep slopes and karst.
Visuals/Recreation	Top (>700') visible looking east from Dry Passage (West Coast Waterway) in middleground. Modified Landscape LUD.	Meets VQO. Harvest Types D & I, to address karst concerns, will improve visual quality.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Rd. 66-78-05 (43 stations). 1000' full bench road.	Relocate Rd. 66-78-05 away from karst features (located north of unit) near Rd. 29. Helicopter log west and south portions of unit to steep slopes and karst features that make roading infeasible. Close road upon completion of harvest.
Unit Layout/Administration	Swing yard eastern portion of unit to the road. Helicopter log west and south portions of unit. Estuary identified west of unit.	Maintain 1000' buffer from western edge of unit.
Opportunities		

BMP's 12.6, 12.7, 13.5, 13.9, 14.10, 14.17.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 537.1-208

Acres: 25.3



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 537.1-208 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-207

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 537.1-208

Harvest Volume : 24.2 MBF/acre

Acres : 25.3

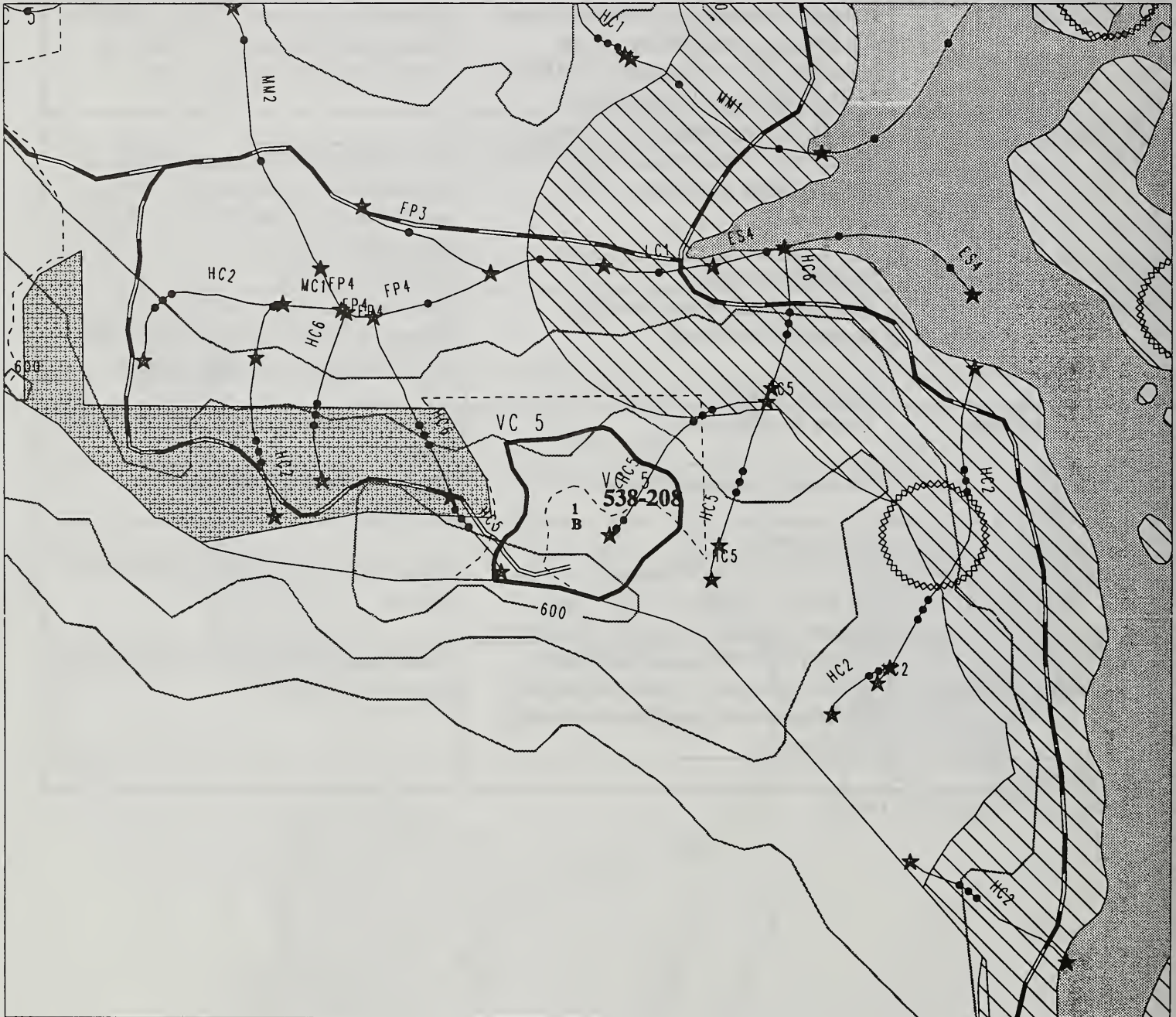
Resource Area	Concerns	Resolution
Silviculture	Hemlock overstocking. Hemlock canker significant throughout unit. Slope instability. Poor regeneration and heavy brush competition in slump areas.	Regeneration Harvest Type A. Interplant yellowcedar. Consider PCT within 20 years to reduce hemlock stocking.
Fisheries	No fish-bearing streams in or near unit.	
Soils	Foresters identified two old slumps within unit and slopes exceeding 100%.	Have soils specialists verify stability of old slides during final layout. Achieve partial suspension where slopes exceed 60%. BMP 13.5, 13.9
Water Quality/Quantity	No streams in unit.	BMP 12.11, 14.10
Wildlife	Reduction in structural diversity. Increase in road access.	Concern Level 1 structure retention through 100' ITM along unit boundary. Close Road 65-78-24 after harvest.
Karst	No karst features.	
Visuals/Recreation	Visible from Rd. 20.	Retain windfirm trees within ~100 feet of road .
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Rd. 65-78-25 (26+50 stations) is off of Rd. 65-78-24 at Sta. 21+35. Two stations of full bench, some 12% adverse.	Close Rd. 65-78-24 after completion of harvest.
Unit Layout/Administration	Swing yard or 90' tower with running skyline (grabinski). Partial suspension can be achieved throughout the majority of the unit.	Partial suspension can be achieved where slopes exceed 60%.
Opportunities		

BMP's 12.11, 13.5, 13.9, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 538-208

Acres: 20.5



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 538-208 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-209

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 538-208

Harvest Volume : 19.8 MBF/acre

Acres : 20.5

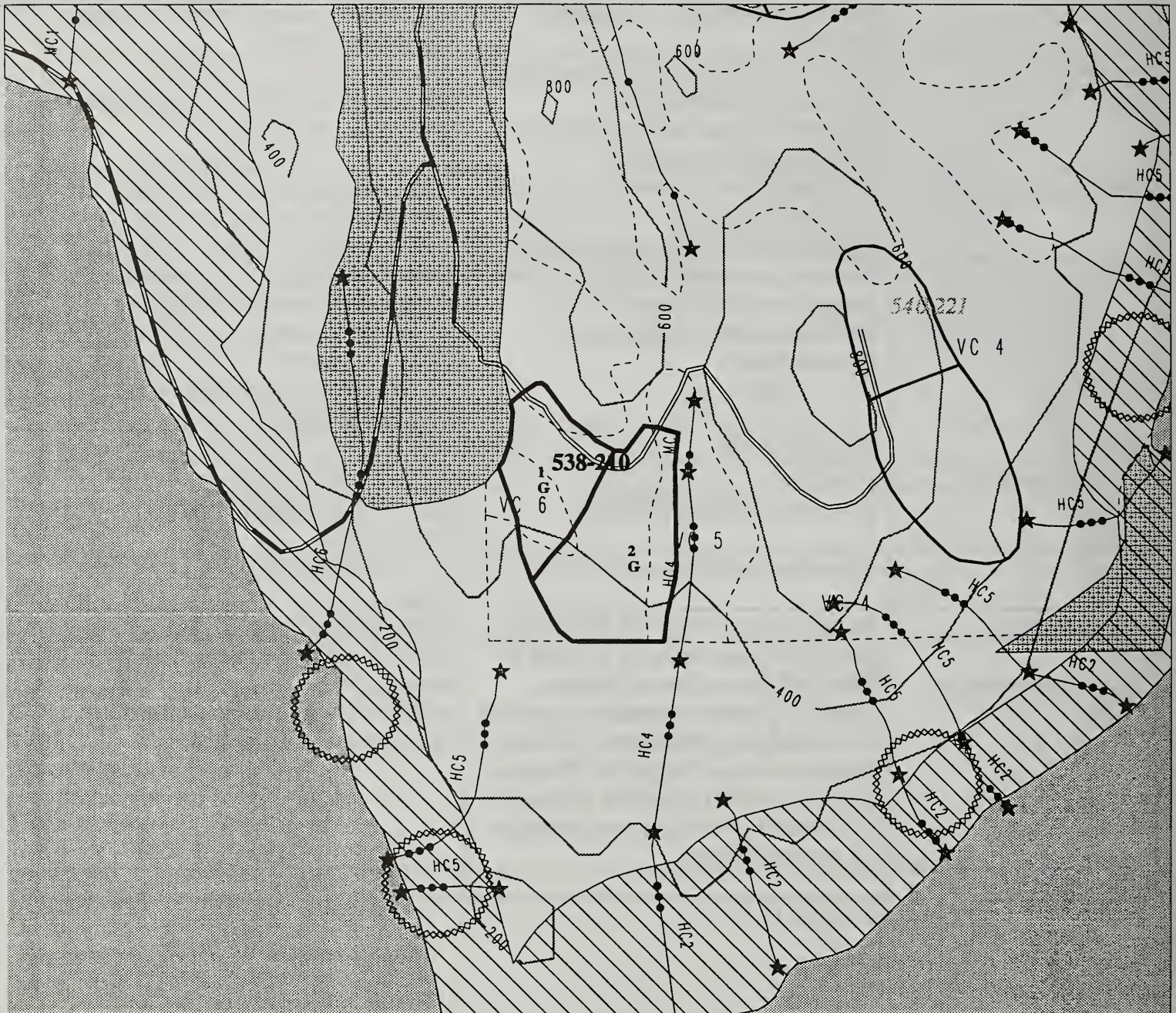
Resource Area	Concerns	Resolution
Silviculture	Hemlock overstocking. Salmonberry incursions.	Regeneration Harvest Type B. Consider PCT within 20 yrs.
Fisheries	No fish-bearing streams in or near unit.	
Soils	Prevent increased erosion and sedimentation (east half may be within domestic supply watershed.).	Achieve at least partial suspension in east half of unit. BMPs 13.5, 13.9
Water Quality/Quantity	One Class III stream flows north through eastern portion of unit. Stable channel, not incised. Prevent increased sediment.	Locate east unit boundary to west of stream. Directional fell away from stream. BMPs 12.7, 13.2, 13.16, 14.10.
Wildlife	Watershed is currently at minimum snag density levels (275 snags/100 acres). Meets parameters for high quality goshawk habitat.	Implement Concern Level 3 structure retention recommendations through retention of trees in blind lead and 100' buffer on Class III stream flowing along west boundary. Survey unit for goshawks prior to final layout.
Karst	No karst features.	
Visuals/Recreation	No concern.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	Private land north and east of unit.	Locate property boundary prior to final layout.
Transportation	Rd. 66-79-35 11 STA; 175' full bench.	Close road upon completion of harvest.
Unit Layout/Administration	Swing yard west portion of unit; use 100' tower with live skyline and haulback capability. Partial suspension required on east half of unit. Run multiple profiles to determine limits of loggability (blind lead areas on west half and partial suspension on east half). North and east boundaries are on private land.	Establish 100' buffer along Class III stream along west boundary. Retain wildlife leave area along north and east boundary in blind lead area.
Opportunities		

BMP's 12.7, 13.2, 13.5, 13.9, 13.16, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 538-210

Acres: 30.8



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 538-210 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |

F-211

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 538-210

Harvest Volume : 12.5 MBF/acre

Acres : 30.8

Resource Area	Concerns	Resolution
Silviculture	Low site quality. Mistletoe infection in overstory.	Harvest Type G - shelterwood. Select yellowcedar for retention. Exclude western hemlock. Partial suspension where practical. Consider PCT within 20 yrs.
Fisheries	Lower portion of stream east of unit may support fish (near mouth). Prevent increased sediment.	See water quality. BMP 12.6
Soils	No special concerns.	
Water Quality/Quantity	Class III stream flows south along east side of unit - very small, little flow, muskeg drainage. The Whale Pass Lodge's domestic water supply comes from stream along west boundary.	Locate east unit boundary to west of Class III channel. Directionally fell trees away from channel. Retain 150' buffer along stream on west boundary determined provide domestic water supply. Road accessing this unit will be closed following timber harvest. BMP 12.7, 13.2, 13.10, 13.16, 16.3.
Wildlife	Reduction in snag habitat. Proposed road construction within 1/2 mile of eagle nest. Meets parameters for high quality goshawk habitat.	Concern Level 1 structure retention through 150' stream buffer along west boundary, blind lead along south boundary, and retention area between landings at north boundary, as well as harvest prescription. Implement 1/2 mile seasonal blasting restrictions. Survey unit for goshawks prior to final layout.
Karst	No karst features.	
Visuals/Recreation	Visible from Whale Passage in middleground, behind Whales Resort. Adopted Maximum Modification VQO.	Meets VQO. Retain a triangular island of timber between landings on upper boundary.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	Private property to west and south.	Locate boundary prior to final layout.
Transportation	Mainline Rd. 66-80-30 passes through unit. No spurs required.	Close road upon completion of harvest.
Unit Layout/Administration	Recommend swing yarder for both settings due to inadequate guy stumps for large tower. Partial suspension possible with swing yarder, but not required.	Retain island of timber between landings on upper boundary. Move west unit boundary to establish 150' buffer on domestic watershed stream.
Opportunities		

BMP's 12.6, 12.7, 13.2, 13.10, 13.16, 16.3.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 538-223

Acres: 32.9



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 538-223 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-213

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 538-223

Harvest Volume : 23.0 MBF/acre

Acres : 32.9

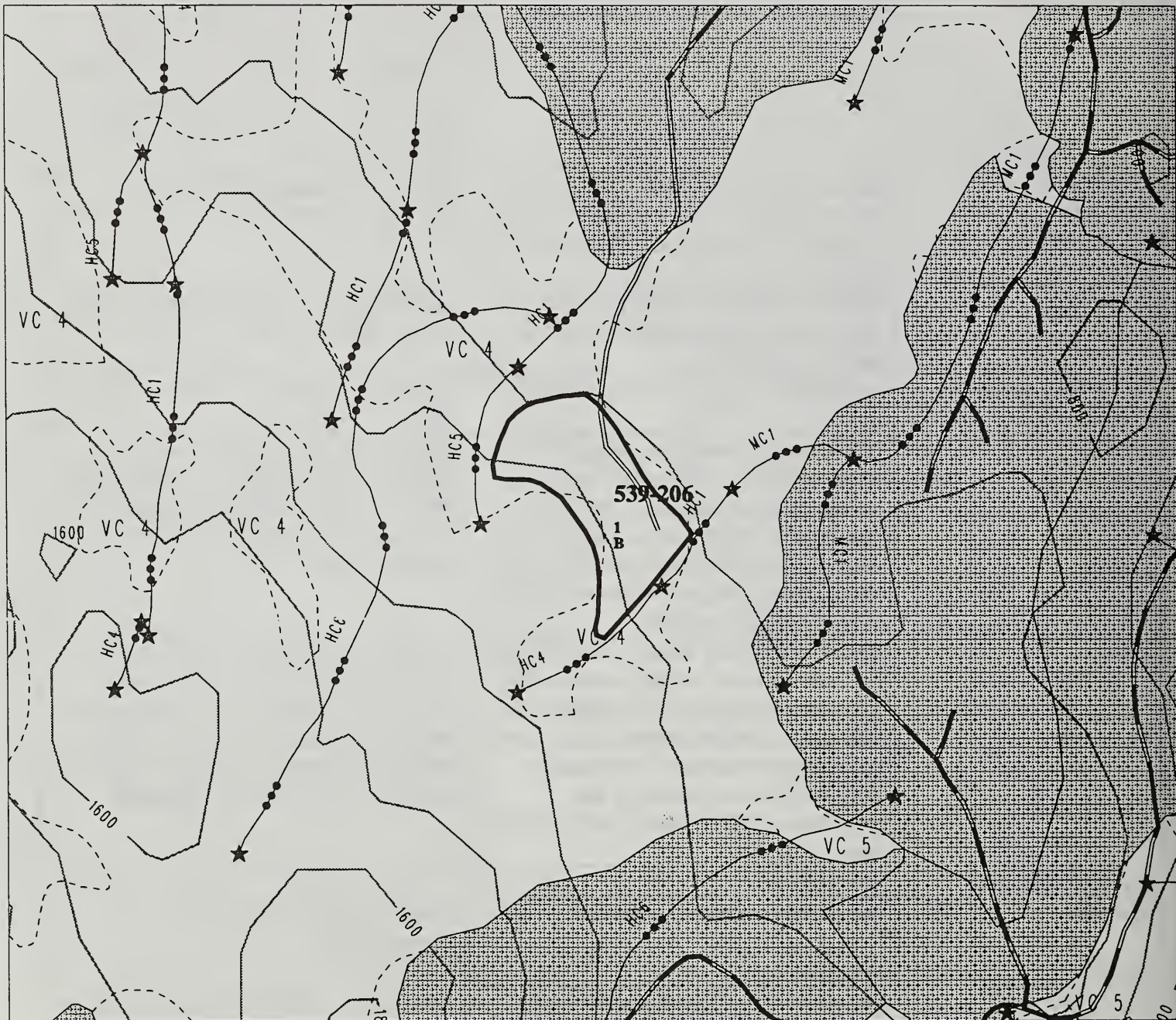
Resource Area	Concerns	Resolution
Silviculture	Large advance reprod. Overstocking.	Regeneration Harvest Type D; buffer karst features. Avoid larger advanced reproduction during logging. Site-specific retention areas within the unit were identified by field personnel. Consider PCT within 20 yrs.
Fisheries	No fish-bearing streams in or near unit. Reconstruction of Spur road off of Road 27 will require temporary bridge over 108 Creek (Class I).	Apply timing restriction to Class I crossing. BMP's 12.6, 12.7, 14.6, 14.14, 14.16, 14.17.
Soils	Thin soils over rock outcrops - minimize disturbance on steep slopes to prevent loss of productivity.	Achieve at least partial suspension where slopes >60%. BMPs 13.5, 13.9.
Water Quality/Quantity	Intermittent stream flows east through unit.	Yard away from stream. BMPs 12.7, 14.10.
Wildlife	Watershed is currently at minimum snag density levels (275 snags/100 acres) due to extensive past harvest in the area. Second growth adjacent to unit on three sides. Reduction in thermal cover - deer winter range. Located within an Project-defined wildlife corridor.	Concern Level 3 structure retention through retention areas in northwest lobe, northeast lobe and southwest corner of unit, as well as patch of reprod. in north central portion of unit.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to moderately developed karst features (grikes and sinkholes) and cave near eastern boundary. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Avoid construction over sinkholes. Directional fell away from sinkholes. Retain buffer around cave. Recommend that karst specialist review unit during layout. Additional karst features located should receive minimum 100' buffer.
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Rd. 66-79-15A 12+10, Rd. 66-79-15B 12+90, Rd. 66-79-15.2 2+90, Rd. 66-79-15.3 5+00. Some reconstruction ~3/4 mile of existing spur to Rd. 27, including Class I stream crossing (See Fisheries).	Reprod retention area in north central part of unit will eliminate the need for 2+90 stations of Road 66-79-15.2. Close road upon completion of harvest.
Unit Layout/Administration	Some karst; partial suspension required where slopes exceed 60%. Swing yard, running skyline. 200'-300' average yarding distance; 1000' maximum.	Adjust unit boundaries to retain leave-tree patches in northwest, north central and southern tip of unit to meet Concern Level 3 structure retention. Apply BMPs 13.5 and 13.9
Opportunities		

BMP's 12.6, 12.7, 13.5, 13.9, 14.6, 14.10, 14.14, 14.16, 14.17.

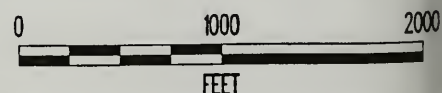
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 539-206

Acres: 18.8



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 539-206 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-215

March 03, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 539-206

Harvest Volume : 12.3 MBF/acre

Acres : 18.8

Resource Area	Concerns	Resolution
Silviculture	Hemlock overstocking.	Regeneration Harvest Type B; site-specific retention areas within the unit were identified by field personnel. Consider PCT within 20 yrs.
Fisheries	No fish-bearing streams in or near unit.	
Soils	No special concerns.	
Water Quality/Quantity	Class III stream flows northeast along southeast side of unit; stable, boulder/cobble substrate; logs form steps.	Use stream channel as southeast unit boundary. Directionally fall away from stream. Apply BMPs 12.7, 13.2, 13.10, 13.16, 14.10, 14.13
Wildlife	Watershed is currently at minimum snag levels (275 snags/100 acres). Muskeg to east of unit. High wildlife use area.	Concern Level 3 structure retention through harvest prescription that will retain areas along east and south boundary.
Karst	Road crosses karst prior to entering unit.	Re-adjust road alignment approximately 150' eastward to avoid karst features.
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires Rd. 65-80-19 (24.5 stations) - substantial fill in some wet areas.	Re-adjust road alignment approximately 150' eastward to avoid karst features. Close road upon completion of harvest.
Unit Layout/Administration	Swing yard. Partial suspension on downhill logging in most areas, but benching topography may cause some ground lead.	Retain leave strip and east of (below) proposed road, and 100' strip along Class III stream (south boundary).
Opportunities		




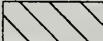





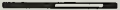



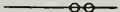


BMP's 12.7, 13.2, 13.10, 13.16, 14.10, 14.13.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 539-210

Acres: 63.8



- | | | | |
|---|-------------------------------|---|----------------------|
|  | Project Boundary |  | Water |
|  | Unit 539-210 |  | Beach Fringe/Estuary |
|  | Other Units |  | Second Growth |
|  | Timber Type Boundary |  | 200 ft contours |
|  | Eagle Nest Buffer (330ft) | | |
|  | Existing Roads | | |
|  | Proposed Roads | | |
|  | Class I Stream | | |
|  | Class IIa Stream | | |
|  | Class IIb Stream | | |
|  | Class III Stream | | |
|  | Potential Channel Type Change | | |
- F-217**



NORTH



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 539-210

Harvest Volume : 18.8 MBF/acre

Acres : 63.8

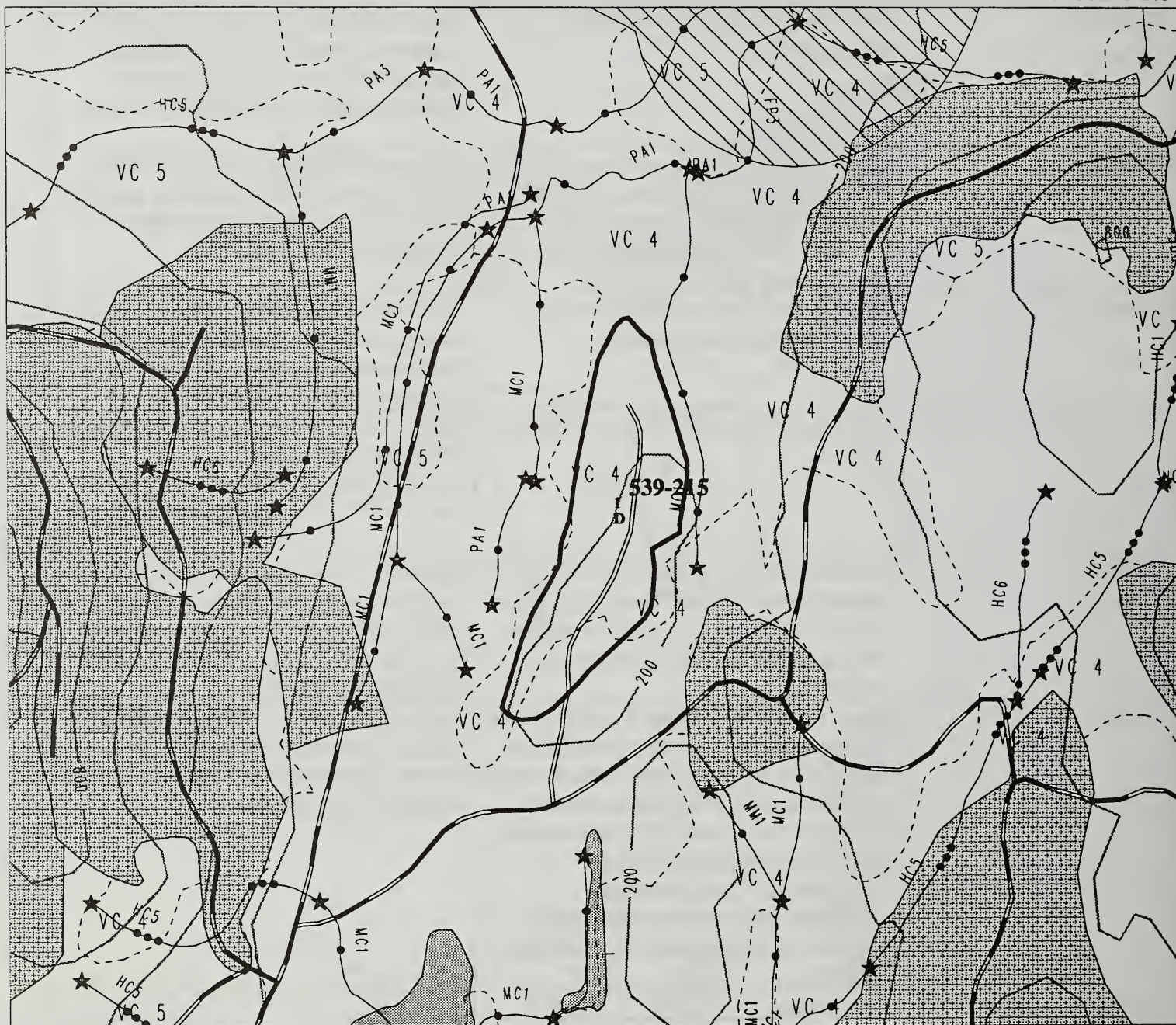
Resource Area	Concerns	Resolution
Silviculture	Some steep slopes, shallow soils. Overstocking.	Regeneration Harvest Type C. Partial suspension where practical (Helicopter logging will achieve full suspension throughout unit). Consider PCT within 20 yrs.
Fisheries	Class I stream west of unit flows into Exchange Lake north of unit. Stream supports adfluvial trout population. Moderate potential for windthrow in buffer around lake.	100' required buffer on Class I stream. 100' no-harvest buffer, plus 400' selective harvest buffer on lake will provide windfirm buffer. BMP 12.6
Soils	Steep slopes, shallow soils in southeast corner. Minimize disturbance.	Achieve partial suspension in southeast corner (area south of eastern landing). Full suspension will be achieved through helicopter logging. BMPs 13.5, 13.9
Water Quality/Quantity	Three stable Class III streams in unit; not incised.	Yard away from the two western streams. Directional fall away from all 3 designated streams and remove logging debris (CTG.51). Apply BMP 12.7, 13.16.
Wildlife	Riparian areas along lake to north and stream to west are travel corridors. High bear use along lake. Potential waterfowl nesting habitat at muskeg between unit and lake.	Maintain 100' no-harvest buffer plus 400' selective harvest buffer along lake and 100' buffer along Class I stream to west. This will also maintain Concern Level 1 structure within the unit.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to well-developed karst features proximal to unit. Proposed access road would cross well-developed sinkholes and grike. Unit is on poorly-drained conglomerate. Cave located on limestone/clastic contact ~500' east of unit and ~200' downslope of access road location.	Road eliminated due to karst concerns. Unit field-verified during 1994 Phase 2 studies. Harvest of unit is not anticipated to affect karst resources.
Visuals/Recreation	No concerns.	
Cultural	No cultural resources.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires road 66-79-12 (36 stations), 2 stations of full bench with rock blasting, 12 foot thin-cut for 50 feet due to knife edge ridge. 13 stations at 12 percent adverse grade.	Road eliminated due to karst concerns.
Unit Layout/Administration		Unit to be helicopter logged to adjacent, existing landings.
Opportunities		

BMP's 12.6, 12.7, 13.5, 13.9, 13.16.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 539-215

Acres: 31.5



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 539-215 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 539-215

Harvest Volume : 10.8 MBF/acre

Acres : 31.5

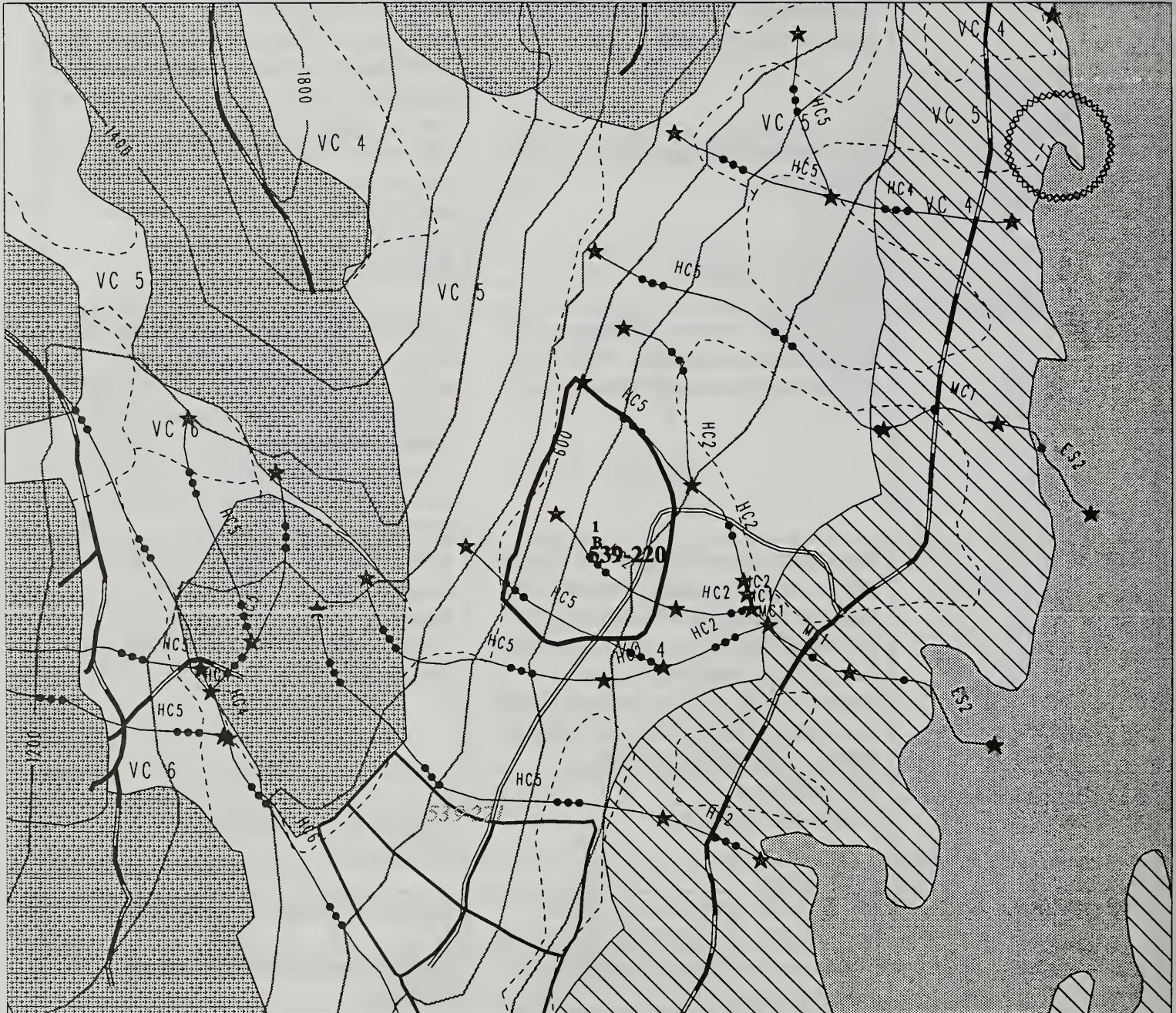
Resource Area	Concerns	Resolution
Silviculture	Overstocking. Mistletoe in overstory and advanced reproduction.	Regeneration Harvest Type D; retain timber in leave-tree area, NW portion, to protect karst resources. Cut mistletoe infected non-merchantable trees at time of harvest. Consider PCT within 20 yrs.
Fisheries	Fish-bearing Class I streams to east and west of unit.	100' required buffer plus 50' selective harvest on stream east of unit. Stream west of unit >150' from unit. Apply BMP 12.6.
Soils	No special concerns.	BMPs 14.9, 14.10
Water Quality/Quantity	No streams in unit.	
Wildlife	High wildlife use area - estuary to north, muskeg to south and west. Partial cut recommended to maintain thermal cover.	1000' estuary buffer maintained to north. Partial cut not recommended due to mistletoe (see Silviculture). Forested area maintained between unit and muskeg in south portion of unit. Concern Level 1 structure retention will be maintained. Leave-tree island on NW portion will provide additional structure.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to very well-developed karst features (sinkholes, solution channels) on west side, and proximity to Class I streams. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Avoid construction and yarding over karst features. Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers.
Visuals/Recreation	No concerns	
Cultural	No cultural resources.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Rd. 66-80-07 (25 stations). Several hundred feet of road through soft ground.	Close road upon completion of harvest.
Unit Layout/Administration	Swing yard and grapple, poor tailholds - twister or cat.	Maintain established 1000' estuary buffer.
Opportunities		

BMP's 12.6, 14.9, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 539-220

Acres: 28.3



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 539-220 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 539-220

Harvest Volume : 12.7 MBF/acre

Acres : 28.3

Resource Area	Concerns	Resolution
Silviculture	Steep slopes. Overstocking.	Regeneration Harvest Type B; retain structure between settings and along streams, where possible. Feather upper edge of unit. Partial suspension to protect soil. Consider PCT within 20 yrs.
Fisheries	Seven Class III streams merge into three Class II streams which converge into a Class I stream. Numerous trout observed in shallow pools of Class II streams. Fair to good spawning in Class I stream. Prevent increased sediment. Class IIa stream crossing required (see Transportation). Harvest within HGC buffer will exceed threshold of 25 percent.	100' required buffer on three Class II streams. See water quality. Class II stream crossing. Timing requirements due to Class I stream located ~500' downstream. Provide no harvest buffers on HGC streams within and adjacent to unit where feasible. BMPs 12.6, 12.7, 14.6, 14.10, 14.17
Soils	High MMI soils above 500' elevation where slopes >60%. Bluffs and small debris slide in northwest corner.	Achieve at least partial suspension where slopes >60%. Retain trees in northwest corner - put north unit boundary south of Class III stream (as flagged in field). Apply BMPs 12.7, 13.2, 13.5, 13.9.
Water Quality/Quantity	7 Class III streams originate within unit and flow east into fish-bearing streams. Stream near north unit boundary contains unconsolidated material. Active bedload movement associated with debris slide in northwest corner. Other streams originate midslope from seep channels and are actively downcutting.	Yard away from identified stream channels and remove logging-related debris (CT6.51). Locate north unit boundary south of Class III stream to retain trees in area between two forks where unstable.
Wildlife	Estuary east of unit; high wildlife use area. High road density. Unit is within Trumpeter swan winter habitat.	1000' estuary buffer. This will maintain Concern Level 1 structure. Implement 1/2 mile disturbance buffer if swans are present. Close Road 65-80-31 at junction with Road 30 following completion of harvest.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to steep slopes, proximity to Class II streams, and resurgences near base of unit. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Achieve partial suspension due to steep slopes and/or thin soils on karst. Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers.
Visuals/Recreation	Visible from Exchange Cove.	1000' estuary buffer will screen lower portion of unit.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Rd. 65-80-31 needs to be constructed through sta. 22+80. Class IIa stream crossing at sta. 6+03.	Close Road 65-80-31 at junction west/Road 30 after completion of harvest.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 539-220

Acres: 28.3

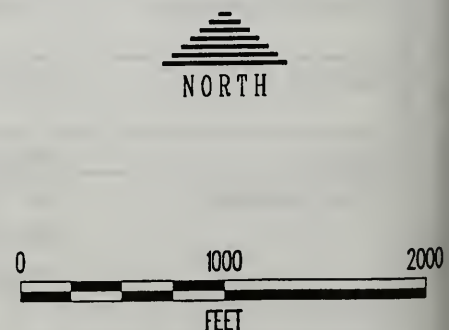


- Project Boundary
- Unit 539-220
- Other Units
- Timber Type Boundary
- Eagle Nest Buffer (330ft)
- Existing Roads
- Proposed Roads
- Class I Stream
- Class IIa Stream
- Class IIb Stream
- Class III Stream

- Water
- Beach Fringe/Estuary
- Second Growth
- 200 ft contours

★ Potential Channel Type Change

F-223



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 539-220 (Continued)

Unit Layout/ Administration	Partial suspension required. 100' tower, live skyline with haulback capability in order to achieve good suspension. Poor landing site at Rd. 65-80-31, sta. 22+04. Run additional profiles to see if this landing is necessary. Poor anchors above bluffs on west unit boundary.	Propose moving west unit boundary downhill below the bluffs to provide for better tailhold anchoring and logging safety.
Opportunities		

BMP's 12.6, 12.7, 13.2, 13.5, 13.9, 14.6, 14.10, 14.17.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 539-221

Acres: 47.2



- Project Boundary
- Unit 539-221
- Other Units
- Timber Type Boundary
- Eagle Nest Buffer (330ft)
- Existing Roads
- Proposed Roads
- Class I Stream
- Class IIa Stream
- Class IIb Stream
- Class III Stream

- Water
- Beach Fringe/Estuary
- Second Growth
- 200 ft contours

★ Potential Channel Type Change

F-225



March 04, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 539-221

Harvest Volume : 11.6 MBF/acre

Acres : 47.2

Resource Area	Concerns	Resolution
Silviculture	Steep slopes. Soil protection.	Regeneration Harvest Type D above road (2 settings); retain buffers around karst features in upper 1/2 of unit. Feather top edge for visuals. Type A harvest below road (2 settings). Partial suspension where practical. Consider PCT within 20 yrs.
Fisheries	Class I stream below unit. Prevent increased sediment from Class III v-notch.	See water quality.
Soils	No special concerns.	
Water Quality/Quantity	Class III v-notch along southwest boundary; active bedload movement. Small Class III stream within unit; shallowly incised, stable.	Put southeast unit boundary on topographic break 80'-100' above creek. Remove logging-related debris from identified stream course (CT6.51). Apply BMPs 12.7, 13.2, 13.5, 13.9, 12.11, 14.3, 14.8, 14.10
Wildlife	Estuary to east of unit is high wildlife use area. High road density. Unit is within Trumpeter swan winter habitat.	1000' estuary buffer. This along with the harvest prescriptions will maintain Concern Level 1 structure. Implement 1/2 mile disturbance buffer if swans are present. Close Road 65-80-31 after completion of harvest.
Karst	Based on results of Phase 1 and 2 studies, this unit is located on high vulnerability karst due to presence of well-developed karst features (grikes, sinkholes), steep slopes, and proximity to Class I stream. If this unit is harvested, interim standards and guidelines (USDA Forest Service 1994) may not be met.	Achieve partial suspension due to steep slopes and/or thin soils on karst. Avoid construction over sinkholes. Retain buffers around karst features in upper 1/2 of unit. Recommend that karst specialist review unit during layout. Any additional karst features located should receive minimum 100' buffers.
Visuals/Recreation	Visible from Exchange Cave.	1000' estuary buffer will screen lower portion of unit.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires 24 station extension of Rd. 65-80-31. Requires 7 stations full bench with rock blasting. Numerous crossings of small streams.	Close Road 65-80-31 at junction with Road 30 after completion of harvest.
Unit Layout/Administration	Swing yarder with running skyline for downhill, and shotgun for uphill yarding. Tailholds for uphill yarding may require secondary supports or artificial earth anchors.	
Opportunities		

BMP's 12.7, 12.11, 13.2, 13.5, 13.9, 14.3, 14.8, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 539-222

Acres: 82.8



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 539-222 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-227

March 04, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 539-222

Harvest Volume : 18.2 MBF/acre

Acres : 82.8

Resource Area	Concerns	Resolution
Silviculture	Multi-story and multi-age stand. Mistletoe. Overstocking.	Harvest Type E (Overstory removal). Mark individual trees or very small clumps that are older or defective (includes infected with mistletoe). Protect second growth and reproduction. Consider PCT within 10 yrs.
Fisheries	Class I stream runs north through unit. Numerous trout and coho observed. Good rearing habitat. Small beaver ponds near center of unit. Bank erosion occurring in upper reaches of stream. Also, access road will cross Class I stream.	100' no-commercial harvest buffer plus 100' selective harvest buffer. Locate crossing perpendicular to channel and minimize length of road in riparian area. Timing requirements apply for road crossing. BMPs: 12.6, 12.7, 14.6, 14.10, 14.17
Soils	No special concerns.	Apply BMP 13.5.
Water Quality/Quantity	See fisheries.	Apply BMP 12.11, 14.10, 14.17
Wildlife	High wildlife use area - estuary to west of unit. High-quality habitat for cavity excavators, marten, deer, and otter. Proposed road construction within 1/2 mile of eagle nest. Unit is within Trumpeter swan winter habitat. Increased roading in high-quality wildlife area.	1000' estuary buffer to north. Also, trees to west of stream will not be harvested this entry. Snag densities will be maintained through 1000' estuary buffer, 100' TTRA buffer, retention of marginal timber to west and 100' selective harvest buffer. Implement 1/2 mile seasonal blasting restrictions. Implement 1/2 mile disturbance buffer if swans are present. Close Road 66-80-05 after completion of harvest.
Karst	Phase 1 study showed this area to be not on carbonate rock. Low elevation, thick soils and moderate slopes would describe this as low to moderate vulnerability. Class I stream pushes unit into high rating. Karst terrain; sinkholes are sealed with sediment and organic material. There is potential for finding additional significant karst features in or adjacent to unit.	Karst specialist should review unit during layout. Achieve partial suspension or maintain 100' buffers around karst features. Harvest is not expected to adversely affect karst features.
Visuals/Recreation	Potential to be visible from foreground views within Exchange Cove.	1000' estuary buffer and overstory removal visually screen unit and help meet Retention VQO.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Rd. 66-80-05 59 STA (see Rd 66-80-05 file). Road parallels Class I stream for a short distance. One Class I stream crossing (see Fisheries).	Close Road 66-80-05 after completion of harvest. Adjust alignment of road to establish perpendicular channel crossing. Minimize length of road in riparian area and TTRA buffer.

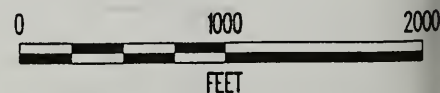
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 539-222

Acres: 82.8



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 539-222 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-229

March 04, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 539-222 (Continued)

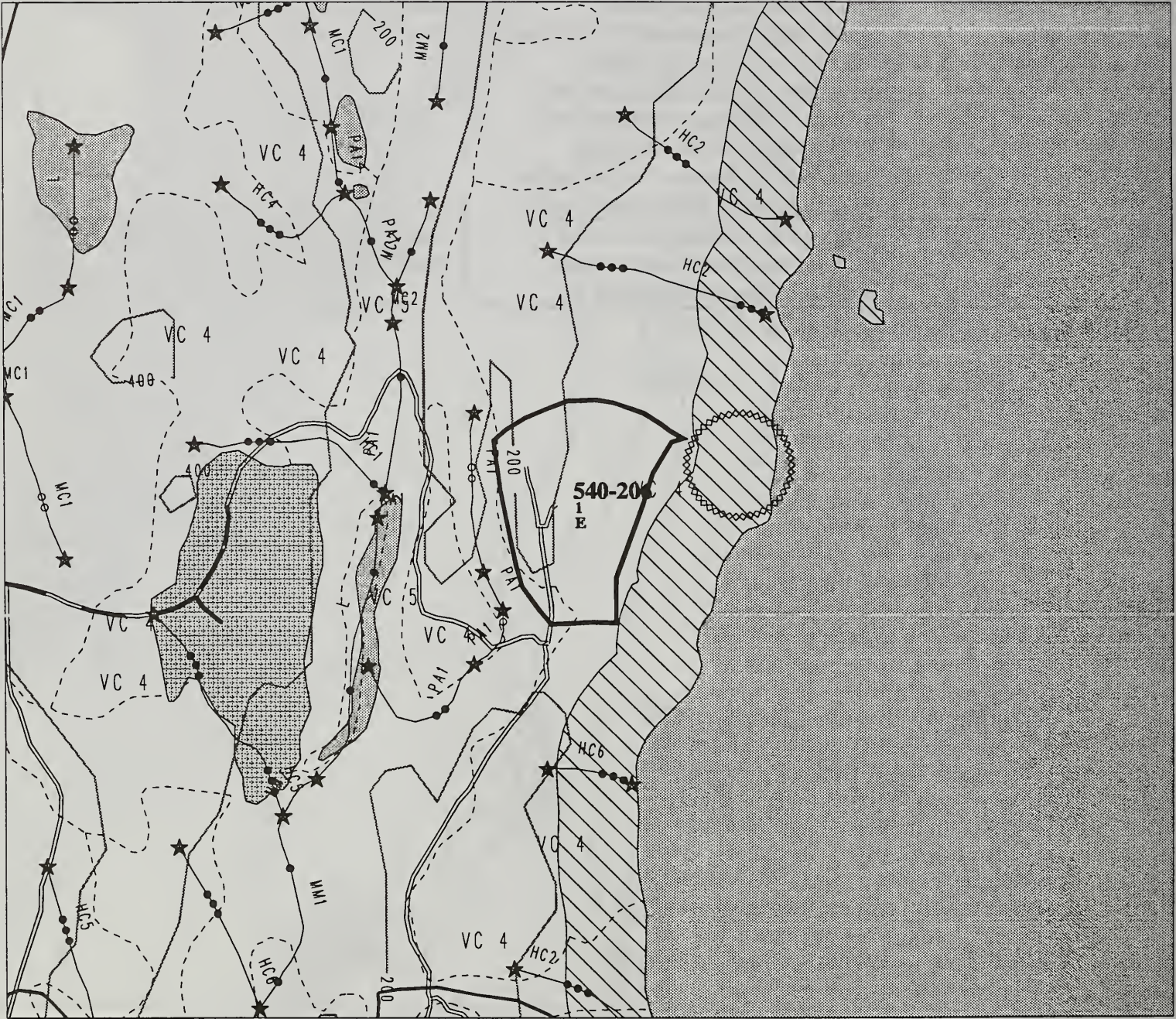
Unit Layout/Administration	Overstory removal - swing boom yarder with mechanical slack pulling capabilities. Trees marked for removal will need to be done by a person experienced in both silviculture and logging. Unit is laid out with a 500' shoreline buffer to the north and northwest; this needs to be changed to reflect a required 1000' estuary buffer.	Adjust north and northwest unit boundaries to reflect 1000' estuary buffer to north and west.
Opportunities	Increased access to shoreline with sheltered beach and nearby island. Possible campground location.	Road to be closed to vehicles due to wildlife concerns. Foot access only.





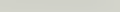

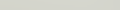









BMP's 12.6, 12.7, 12.11, 13.5, 14.6, 14.10, 14.17.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 540-206

Acres: 25.3



- | | | | |
|---|-------------------------------|---|----------------------|
|  | Project Boundary |  | Water |
|  | Unit 540-206 |  | Beach Fringe/Estuary |
|  | Other Units |  | Second Growth |
|  | Timber Type Boundary |  | 200 ft contours |
|  | Eagle Nest Buffer (330ft) | | |
|  | Existing Roads | | |
|  | Proposed Roads | | |
|  | Class I Stream | | |
|  | Class IIa Stream | | |
|  | Class IIb Stream | | |
|  | Class III Stream | | |
|  | Potential Channel Type Change | | |
- F-231**



UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 540-206

Harvest Volume : 12.7 MBF/acre

Acres : 25.3

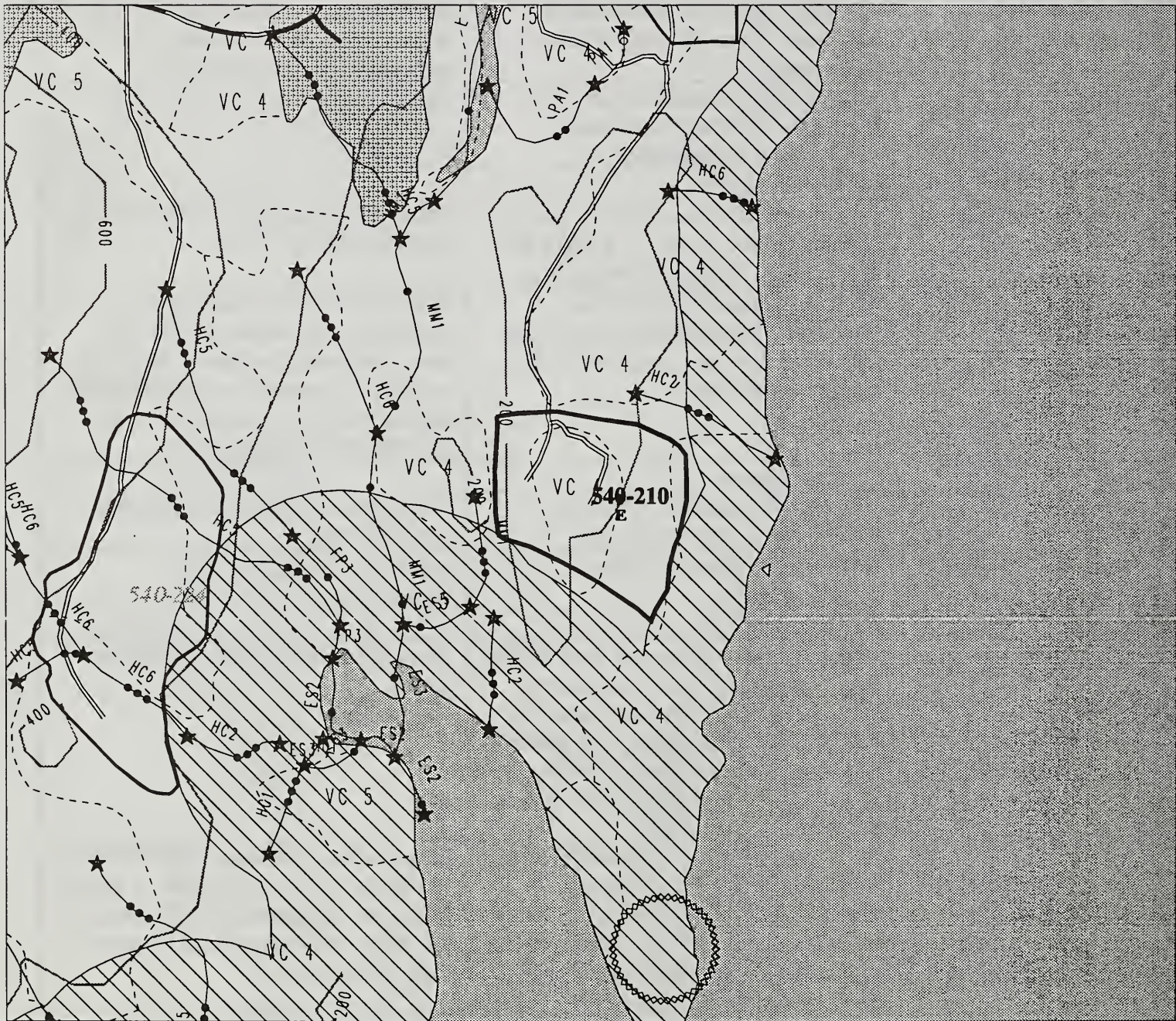
Resource Area	Concerns	Resolution
Silviculture	Windthrow potential. Salmonberry incursions. Saturated soils. Cedar regeneration.	Harvest Type E; retain cedar <12" dbh. Avoid or protect advanced reproduction during logging when practical.
Fisheries	No fish-bearing streams in unit. One Class I and one Class IIb crossing required (see Transportation).	Apply timing restriction to both stream crossings. BMPs 14.6, 14.10, 14.14, 14.16, 14.17
Soils	No special concerns	
Water Quality/Quantity	Small Class III stream flows east through northern portion of unit. It is stable and does not feed into fish-bearing stream.	Remove logging-related debris (CT6.51). Apply BMPs 12.7, 12.11
Wildlife	Maintain forested corridor along shoreline. Increased roading into a high quality wildlife area. Eagle nest buffer adjacent to NE corner.	500' shoreline buffer and harvest prescription will maintain snags over time. Ensure maintenance of 330' eagle nest buffer. Institute timing restriction if blasting within 1/2-mile of nest. Close Road 66-80-04 after harvest.
Karst	No karst features.	
Visuals/Recreation	Visible from saltwater. Within an identified important visual area.	500' shoreline buffer will screen lower portion of unit.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires first 57 stations of Road 66-80-04. 13 stations 12% adverse grade. 5 stations full bench. Requires Road 66-80-04.2 and Rd. 66-80-04.1; no special concerns over 15 stations. One Class I and one Class IIb crossing required; apply timing restrictions.	Close Road 66-80-04 after completion of harvest.
Unit Layout/Administration	Swingyard entire unit. Blowdown on east line is old, good tailholds remain. Potential ITM to protect reproduction. Young timber along west line in middle of unit should be retained. Road location facilitates postponed harvest of this patch.	Requires first 57 stations of Rd 66-80-04. 13 stations 12% adverse grade. 5 stations full bench. Requires Rd. 66-80-04.2 and Rd. 66-80-04.2-1; no special concerns over 15 stations.
Opportunities		

BMP's 12.7, 12.11, 14.6, 14.10, 14.14, 14.16, 14.17.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 540-210

Acres: 26.2



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 540-210 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-233

March 04, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 540-210

Harvest Volume : 19.8 MBF/acre

Acres : 26.2

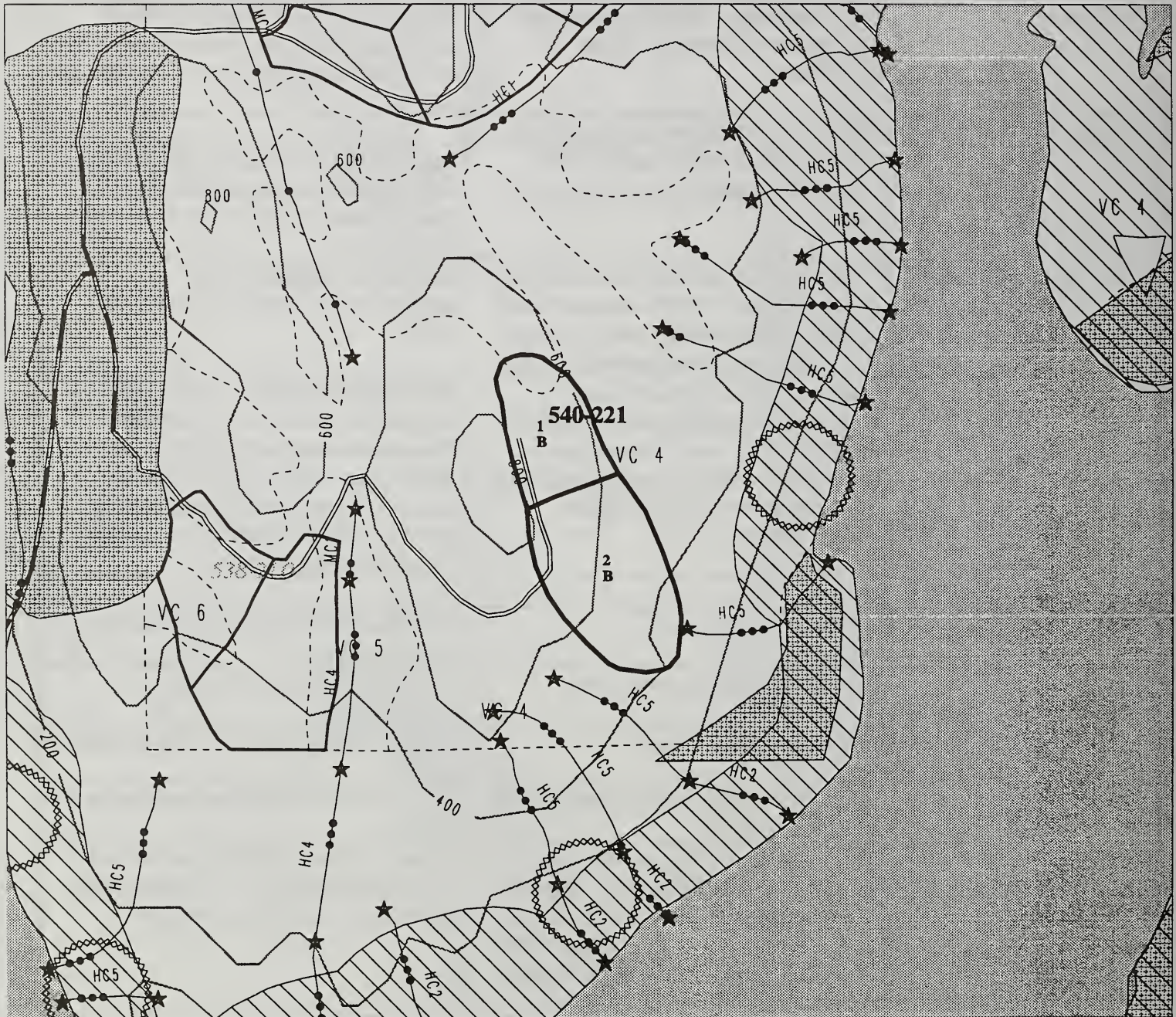
Resource Area	Concerns	Resolution
Silviculture	Soil disturbance. Windthrow potential. Salmonberry incursions. Cedar regeneration.	Harvest Type E (Overstory removal); protect cedar species. Partial suspension where practical. Consider PCT within 20 yrs.
Fisheries	No fish-bearing streams in or near unit.	
Soils	High MMI soils where slopes >60%. Riparian soils adjacent to unit on west side.	Adjust west unit boundary approximately 150' eastward to eliminate harvest on riparian soils. Apply BMPs 12.6, 13.2, 13.5, 13.9
Water Quality/Quantity	Class III stream on east side of unit, north of unit boundary. Stable, moss-covered channel. Small, stable Class III stream flows south out of west portion of unit.	Remove any logging-related debris(CT6.51). BMPs 12.7, 12.11, 14.10
Wildlife	Maintain forested corridor along shoreline. Increased roading into high-quality wildlife area. Proposed road construction within 1/2 mile of eagle nest. Meets parameters for high quality goshawk habitat.	500' shoreline buffer. Concern Level 1 structure retention will be maintained through shoreline buffer and harvest prescription. Implement 1/2 mile seasonal blasting restrictions. Survey unit for goshawks prior to final layout. Close road after harvest.
Karst	No karst features.	
Visuals/Recreation	Visible from salt water.	500' shoreline buffer will screen lower portion of unit.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	Private land south of unit.	Locate property boundary prior to final layout.
Transportation	Rd. 66-80-04 (~43 stations) required to access unit. None.	Close Road 66-80-04 after completion of harvest.
Unit Layout/Administration	Swing yarder - running skyline and shotgun. Partial suspension is required and should be available. 900' maximum yarding distance with an average of 200' to 300'. Riparian soils at west boundary and estuary south of unit.	Adjust west unit boundary as per soils recommendation above. Maintain south boundary at 1000' from estuary.
Opportunities		

BMP's 12.6, 12.7, 13.2, 13.5, 13.8, 13.9, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 540-221

Acres: 29.5



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 540-221 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-235

March 04, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 540-221

Harvest Volume : 12.4 MBF/acre

Acres : 29.5

Resource Area	Concerns	Resolution
Silviculture	Hemlock overstocking. Protect young growth regen area as identified on map. Mistletoe infection. Cedar regeneration.	Regeneration Harvest Type B; retain young-growth patch as identified on map. Feather unit edges. Consider PCT within 20 yrs.
Fisheries	No fish-bearing streams in or near unit.	
Soils	No special concerns.	
Water Quality/Quantity	No streams in unit.	Apply BMPs 12.7, 13.2, 13.15, 14.10
Wildlife	Maintain forested corridor along shoreline. Maintain snag habitat. Muskeg on ridgetop at northwest corner of unit is high wildlife use area. Bald eagle nest located east of unit.	500' shoreline buffer. Area of reproduction/snags near center of unit will be retained. Locate west unit boundary ~50 east of muskeg. These buffers and retention area will maintain Concern Level 1 structure retention. Institute seasonal timing restriction if blasting is to occur within 1/2-mile of eagle nest.
Karst	No karst features.	
Visuals/Recreation	Visible from Whale Passage. Timber Production LUD. Adopted Maximum Modification VQO.	500' shoreline buffer. Edges feathered. Meets VQO.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	Private land south of unit.	Locate property line prior to final layout.
Transportation	Requires last 31 stations of Road 66-80-30 beyond unit 540-210. 10'-12' cuts at two landings to obtain adequate area.	Close road upon completion of harvest.
Unit Layout/Administration	Large tower with hi-lead configuration. Partial suspension not required. Some areas show poor stocking.	
Opportunities		

BMP 12.7, 13.2, 13.15, 14.10.

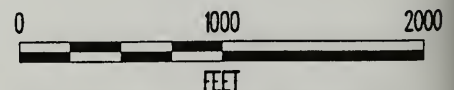
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 540-223

Acres: 68.1



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 540-223 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-237

March 04, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 540-223

Harvest Volume : 12.5 MBF/acre

Acres : 68.1

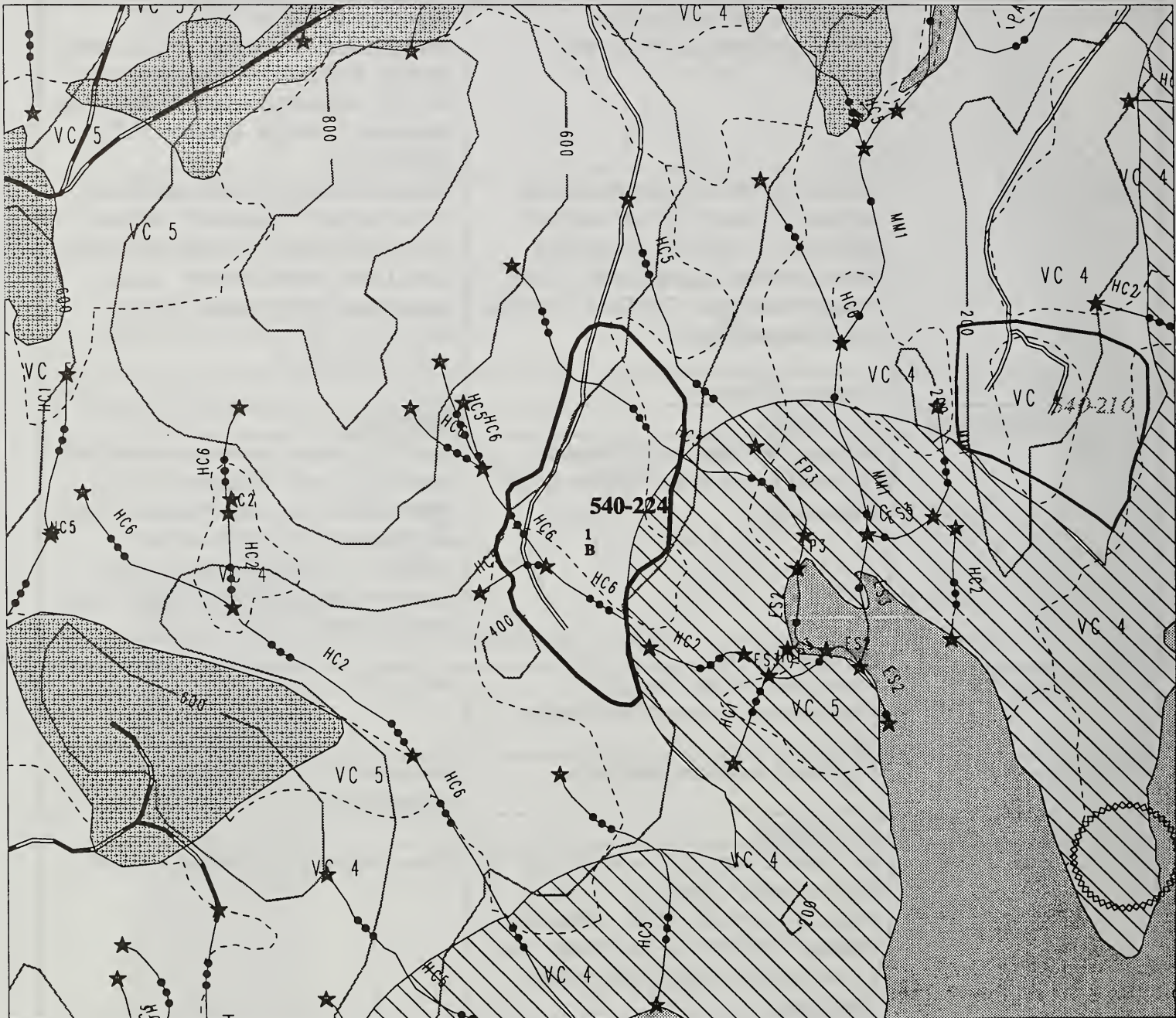
Resource Area	Concerns	Resolution
Silviculture	Areas of low site productivity. Windthrow potential. Rocky soils.	Regeneration Harvest Type D (2 settings); retain leave-tree areas as noted on map. Regeneration Type B harvest (1 setting). Regeneration Harvest Type A in remaining 2 settings. Consider PCT within 20 yrs.
Fisheries	Class III stream flows northeast along southeast boundary (no fish observed - poor habitat). Unstable, steep upper banks contribute fine sediment. Class I stream west of unit. One Class I crossing (see Transportation).	Put unit boundary on topographic break above channel. Directionally fall trees away from stream. 100' required buffer along Class I stream to west. Apply timing restriction to stream crossing. BMPs 12.6, 12.7, 13.2, 13.5, 13.16, 14.6, 14.10, 14.17
Soils	No special concerns.	
Water Quality/Quantity	See fisheries.	BMP 13.15
Wildlife	Muskeg areas along north boundary - high wildlife use area. Maintain future snag habitat.	Level 1, or better, structure retention will be achieved by the following: Class I stream buffer along west boundary; locate east boundary 50'-100' from open muskeg; 1-2-acre leave-tree areas in northwest tip and above rock bluff near center of unit.
Karst	No karst features.	
Visuals/Recreation	Visible from Whale Passage in middleground. Adopted Modification VQO.	Meets VQO.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Rd. 66-79-25 and 25.1 (~58 stations) V-notch crossing 15' deep x 40' wide requiring a large 48" CMP. Some rock blasting (5 sta.), but no full bench. One Class I stream crossing; apply timing restriction.	Close road upon completion of harvest.
Unit Layout/Administration	Partial suspension not required. Portions of unit below 8 mbf per acre. Poor tail trees in some areas, twisting or artificial tail holds will be required. Swing yard to roadside and designated landings. Multiple profiles will need to be run to ensure loggability of rock bluffs in the south central portion of unit.	
Opportunities		

BMP's 12.6, 12.7, 13.2, 13.5, 13.15, 13.16, 14.6, 14.10, 14.17.

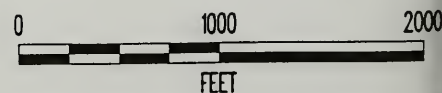
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 540-224

Acres: 39.4



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 540-224 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 540-224

Harvest Volume : 10.3 MBF/acre

Acres : 39.4

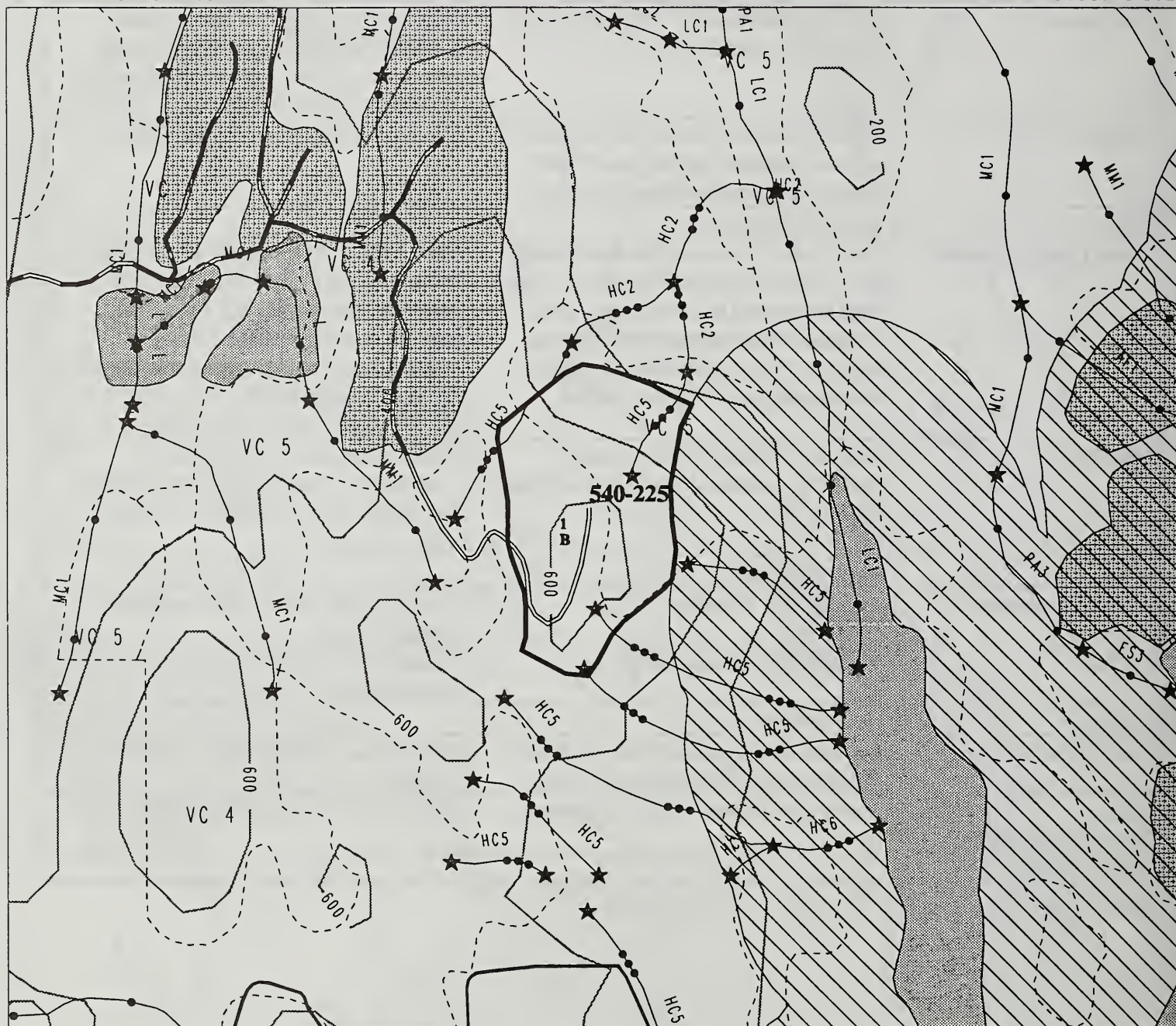
Resource Area	Concerns	Resolution
Silviculture	Low site productivity. Saturated soils. Poor cedar regeneration.	Harvest Type B; retain low-volume timber along unit boundaries. Feather edges. Plant cedar following harvest. Consider PCT within 20 yrs.
Fisheries	Class III streams within unit support fish in lower gradient reaches east of unit. Prevent increased sediment transport.	See water quality. Apply BMP 12.7
Soils	No special concerns.	
Water Quality/Quantity	One Class III stream flows east through unit. Stream is shallowly incised; some mass movement in inner gorge. Large woody debris important for sediment trapping. Two other Class III streams along north and south boundaries.	Split yard on Class III stream within unit and retain trees <12" dbh within 50' of channel. Directional fall away from stream. Locate north and south boundaries on topographic break above streams. Apply BMPs 12.7, 13.5 13.2, 12.11, 13.16, 14.3, 14.8, 14.10
Wildlife	Maintain forested corridor along shoreline. Increased roading into high-use wildlife area.	Concern Level 1 structure will be maintained through harvest prescription and 1000' estuary buffer. Close road after harvest.
Karst	No karst features.	
Visuals/Recreation	Visible from saltwater.	1000' Estuary buffer will screen lower portion of unit.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires construction of Rd. 66-80-08 (50 stations). One station full bench.	Close Road 66-80-08 after completion of harvest.
Unit Layout/Administration	Swing yard to road. Split yard stream.	Maintain 1000' estuary boundary to east.
Opportunities		

BMP's 12.7, 12.11, 13.2, 13.5, 13.16, 14.3, 14.8, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 540-225

Acres: 38.1



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 540-225 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



UNIT PLAN & LAYOUT CARD

LAB BAY PROJECT AREA

Unit #: 540-225

Harvest Volume : 21.4 MBF/acre

Acres : 38.1

Resource Area	Concerns	Resolution
Silviculture	Hemlock overstocking. Cedar regeneration. Windthrow patch and good advanced regeneration on west boundary.	Regeneration Harvest Type B. Protect advanced regeneration by split-yarding around old windthrow patch. Consider PCT within 20 yrs. to enhance species diversity.
Fisheries	Class III streams in unit contribute to fish-bearing streams just north of unit.	Keep north unit boundary 100' upslope of upper limits of fish habitat. See water quality. Apply BMPs 12.6, 12.7, 13.2
Soils	High MMI soils.	Achieve at least partial suspension throughout unit. Apply BMPs 13.5 and 13.9.
Water Quality/Quantity	Two Class III streams flow north through the unit. Shallowly incised, unstable upper banks. Prevent increased sediment transport.	Directionally fell trees away from streams - do not yard logs up channel. Retain unmerchantable trees (<10" dbh) within 50' of streams. Apply BMPs 12.7, 13.5, 13.16, 14.10
Wildlife	Maintain forested corridor along shoreline.	Concern Level 1 structure will be maintained through harvest prescription, 1,000' estuary buffer, and ITM on Class III stream.
Karst	No karst features (Non-carbonate)	
Visuals/Recreation	Visible from Whale Passage in middleground. Adopted Modification VQO.	Meets VQO.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	66-80-19; 23 sta. None.	Close road upon completion of harvest.
Unit Layout/Administration	Partial suspension required; 100' tower, live skyline with haulback capability. Partial suspension should be available. Multiple profiles will be needed to determine the exact unit boundary.	1000' estuary buffer to east. Conduct additional profile analyses to identify final unit boundary.
Opportunities		

BMP's 12.6, 12.7, 13.2, 13.5, 13.9, 13.16, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 551-201

Acres: 17.6



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 551-201 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 551-201

Harvest Volume : 9.2 MBF/acre

Acres : 17.6

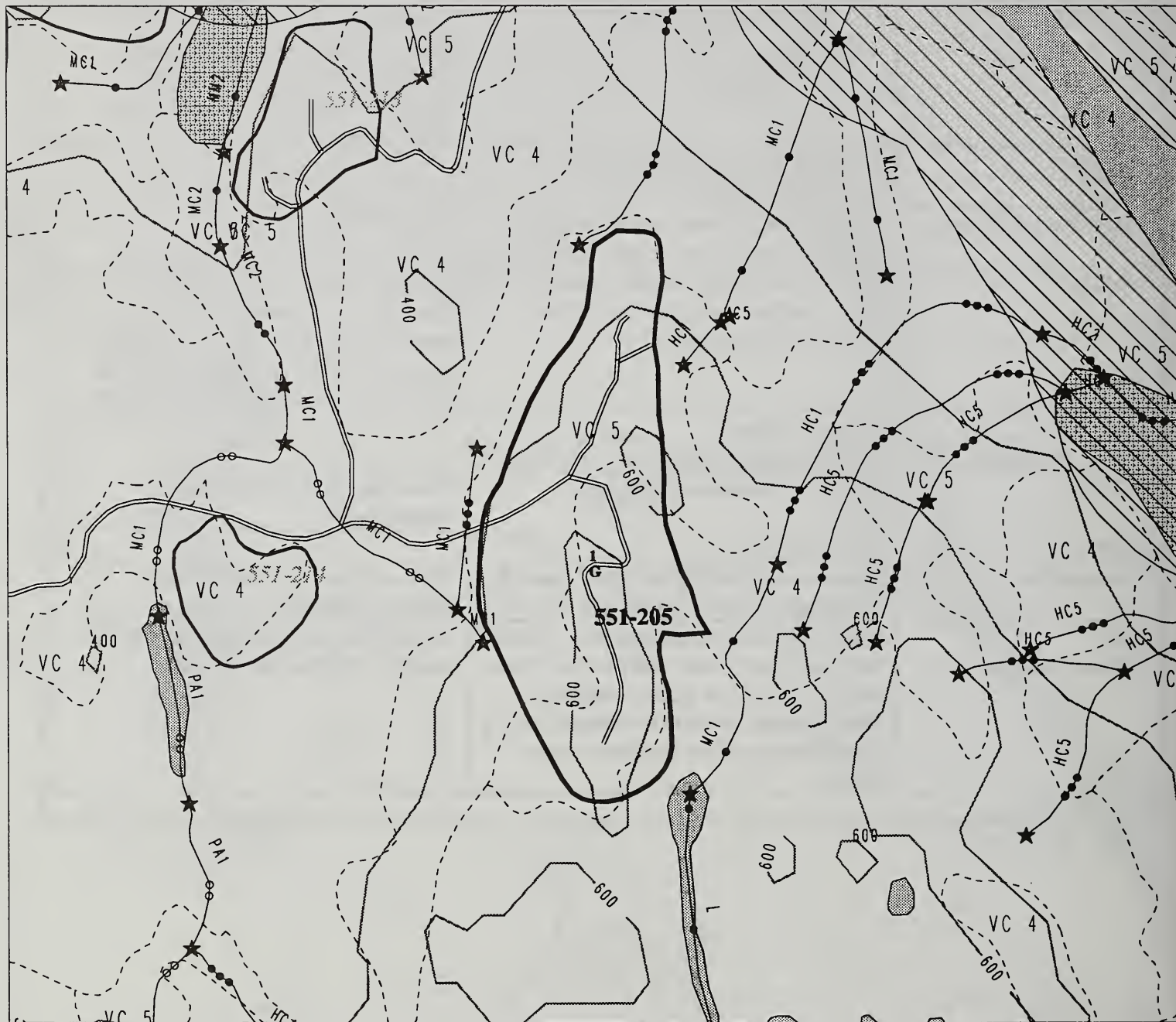
Resource Area	Concerns	Resolution
Silviculture	Low site productivity. Cedar regeneration.	Harvest Type G. Retain at least 2 yellowcedar/ac between settings and along unit boundaries. Avoid soil disturbance where practical. Consider PCT within 20 yrs.
Fisheries	No fish-bearing streams in unit.	
Soils	No special concerns.	
Water Quality/Quantity	Small, Class III seep channel on east side of unit. No special protection required.	BMP 12.7, 14.10
Wildlife	Fragmentation of previously unaltered area. Maintain snag habitat. Within an Project-defined small HCA.	Maintain Concern Level 1 structure through harvest prescription, 1000' estuary buffer, and 100' ITM along unit boundary. Close all roads on Thorne Island following completion of harvest.
Karst	No karst features.	
Visuals/Recreation	Within designated important visual area.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires mainline Rd. 66-80-28 plus 15 station spur network within unit 551-201	Close all roads on Thorne Island following completion of harvest.
Unit Layout/Administration	Swing yard with running skyline. Estuary north and east of unit. Unit laid out with only 500' shoreline buffer established. Unit boundary needs to be changed during final layout to reflect required estuary buffer.	Adjust north and west unit boundary to establish 1000' estuary buffers.
Opportunities		

BMP's 12.7, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 551-205

Acres: 71.5



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 551-205 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-245

March 04, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 551-205

Harvest Volume : 14.9 MBF/acre

Acres : 71.5

Resource Area	Concerns	Resolution
Silviculture	Protection of soil and advanced reproduction. Cedar regeneration.	Harvest Type G shelterwood. Site-specific retention area within the unit was identified by field personnel. Retain at least 2 yellowcedar/ac between settings and along unit boundaries. Avoid soil disturbance where practical. Consider PCT within 20 yrs.
Fisheries	No fish-bearing streams in or near unit.	
Soils	No special concerns.	
Water Quality/Quantity	Class III streams along north boundary and southwest boundary are very small and stable; no special protection required.	BMP 12.7, 14.10
Wildlife	Fragmentation of previously unaltered area. Maintain future snag habitat. Heavy goose sign around lake south of unit. Meets parameters for high quality goshawk habitat. Within Project-defined small HCA.	Leave 3-5-acre area near center of unit in addition to a 100' ITM along the south half of the unit boundary will maintain Concern Level 1 structure. 200' buffer around north end of lake to maintain goose habitat. Implement operating restrictions within a minimum 125 m of goose habitat, if geese are present during critical periods. Survey unit for goshawks prior to final layout. Close all roads on Thorne Island following completion of harvest.
Karst	No karst features.	
Visuals/Recreation	No concerns.	
Cultural	Culturally modified tree located on proposed road location.	Report any other findings to Forest archaeologist. Document culturally modified tree finding prior to road construction.
Lands	No concerns.	
Transportation	Rd. 66-80-34B, 42+50 and Rd. 66-80-34, 24+75. Accessed off of Rd. 66-80-28B. Some potentially unstable soil at sta. 6+10R on spur Rd. 66-80-34A. CMT at STA 7+50R on spur Rd. 66-80-34A.	Close all roads on Thorne Island following completion of harvest.
Unit Layout/Administration	Partial suspension <u>not</u> required. Swing yard entire unit from roadside and designated landings. Partial suspension should be available.	
Opportunities		

BMP's 12.7, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 551-207

Acres: 35.3



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 551-207 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |

F-247

April 13, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 551-207

Harvest Volume : 12.3 MBF/acre

Acres : 35.3

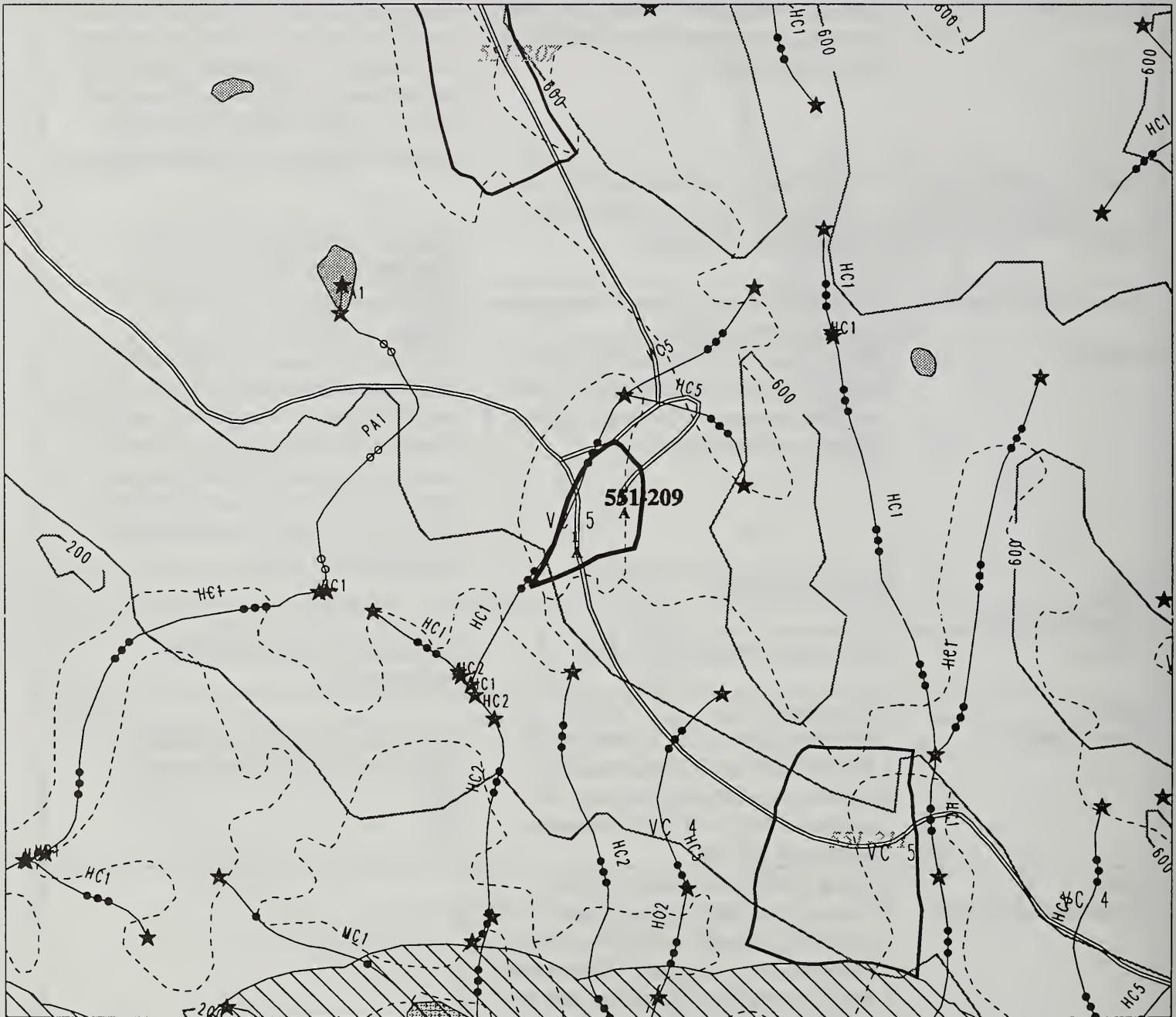
Resource Area	Concerns	Resolution
Silviculture	Low site productivity. Avoid disturbance to young, regenerating stand established from old blowdown.	Regeneration Harvest Type A. Retain at least 2 yellowcedar/ac between settings and along unit boundaries. Do not yard timber through blowdown/regeneration patch. Avoid soil disturbance where practical. Consider PCT within 20 yrs.
Fisheries	No fish-bearing streams in or near unit. Lake to north of unit is ~500' away.	
Soils	Shallow soils - high MMI.	Achieve at least partial suspension throughout unit. BMPs 13.5, 13.9
Water Quality/Quantity	No streams in unit - class III stream along west boundary - stable.	Directional fall away from class III stream. BMPs 12.7, 13.16, 14.10
Wildlife	Fragmentation of previously unaltered area. Maintain snag habitat. Wolf and goose sign around active beaver pond located northwest of unit.	Retention of remaining standing trees within windthrow area near center of unit, and 500' distance from lake on north end of unit will maintain Concern Level 1 structure and minimize disturbance to high use wolf and goose habitat. Close all roads on Thorne Island following completion of harvest.
Karst	No karst features.	
Visuals/Recreation		
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires construction of Road 66-80-33.5 (57 stations). Shallow soils on bedrock and numerous streams. 10 stations of Rd. 66-80-33.5 are used to access unit 551-207.	Close all roads on Thorne Island following completion of harvest.
Unit Layout/Administration	Swing yarder with running skyline. Damage to existing region should be avoided in the large windthrow area in the northwest part of the unit. Timber along south portion of east boundary may be ground or blind lead - borders muskeg; possible wildlife inclusion.	
Opportunities		

BMP's 12.7, 13.5, 13.9, 13.16, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 551-209

Acres: 7.6



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 551-209 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-249

April 13, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 551-209

Harvest Volume : 27.7 MBF/acre

Acres : 7.6

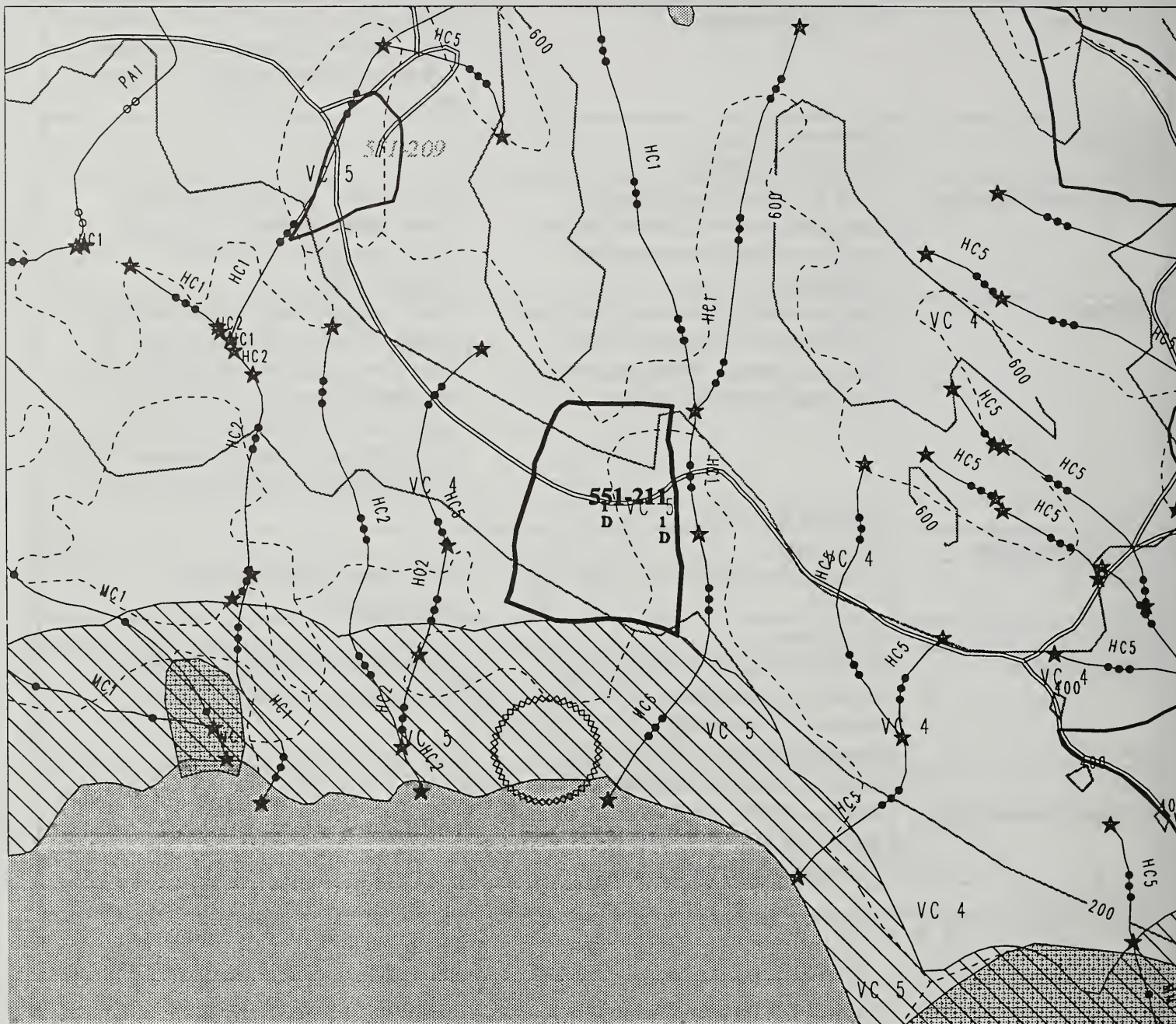
Resource Area	Concerns	Resolution
Silviculture	Cedar regeneration.	Regeneration Harvest Type A. Retain at least 2 yellowcedar/ac between settings and along unit boundaries. PCT within 20 yrs.
Fisheries	See water quality.	
Soils	No special concerns.	
Water Quality/Quantity	Class III stream flows along west boundary. Prevent increased sediment transport to fish-bearing reaches downstream of unit.	Directionally fall away from stream. Locate unit boundary on topographic break above channel. BMPs 12.7, 13.2, 13.16, 14.10
Wildlife	Fragmentation of previously unaltered area. High use wildlife area along muskeg to north. Meets parameters for high quality goshawk habitat.	North unit boundary is ~200' south of muskeg due to nonmerch. timber. 100' ITM along north and northeast boundary to achieve Concern Level 1 structure retention. Survey unit for goshawks prior to final layout. Close all roads on Thorne Island following completion of harvest.
Karst	No karst features.	
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires spur Rd. 66-80-33.6 (10 stations) and Rd. 66-80-33.5 (first 10 stations). Mainline Rd. 66-80-33 passes through southwest corner of unit.	Close all roads on Thorne Island following completion of harvest.
Unit Layout/Administration	Swing yard with running skyline to landing at STA 10+30, Rd. 66-80-33.6 and to Rds. 66-80-33 and 66-80-33.6. Potential mobile tailspar use.	
Opportunities		

BMP's 12.7, 13.2, 13.16, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 551-211

Acres: 29.1



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 551-211 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |

F-251

April 13, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 551-211

Harvest Volume : 14.8 MBF/acre

Acres : 29.1

Resource Area	Concerns	Resolution
Silviculture	Windthrow potential. Cedar regeneration.	Regeneration Harvest Type D. Site-specific retention areas within the unit were identified by field personnel. Retain at least 2 yellowcedar/ac between settings and along unit boundaries. Consider PCT within 20 yrs.
Fisheries	See water quality.	
Soils	High MMI soils.	Achieve partial suspension throughout unit. BMPs 13.5, 13.9
Water Quality/Quantity	Steep Class III stream along east and west boundary. Prevent increased sediment transport to fish-bearing stream >100' below unit.	Put east and west boundaries on topographic break above streams. Directionally fall away from streams. BMPs 12.7, 13.2, 13.16, 14.10
Wildlife	Retain forested corridor along shoreline. Maintain future snag habitat. Proposed road construction within 1/2 mile of eagle nest. Meets parameters for high quality goshawk habitat.	Future snag habitat will be achieved through harvest prescription, 1000' estuary buffer, and retention of two areas of unmerchantable timber. Implement 1/2 mile seasonal blasting restrictions. Survey unit for goshawks prior to final layout. Close all roads on Thorne Island following completion of harvest.
Karst	No karst features.	
Visuals/Recreation	Visible from Whale Passage (on Thorne Island) in foreground. Adopted Partial Retention VQO..	1000' estuary buffer. Retain two areas of unmerchantable timber. Meets VQO.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Mainline 66-80-33 only - bisects unit. Construction to 86+00 required for unit 551-211.	Close all roads on Thorne Island following completion of harvest.
Unit Layout/Administration	Swing yarder recommended for patch cuts. Timber is grouped and LUD is scenic. Some areas not partial suspension due to poor tailholds. Mainline Rd. 66-80-33 bisects unit for roadside landings. 1000' estuary buffer required on south boundary.	Unit laid out at 500' shoreline buffer. South boundary needs to be changed to establish required 1000' estuary buffer.
Opportunities		

BMP's 12.7, 13.2, 13.5, 13.9, 13.16, 14.10.

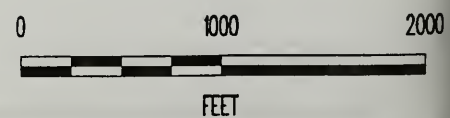
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 551-213

Acres: 17.3



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|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 551-213 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 551-213

Harvest Volume :13.1 MBF/acre

Acres : 17.3

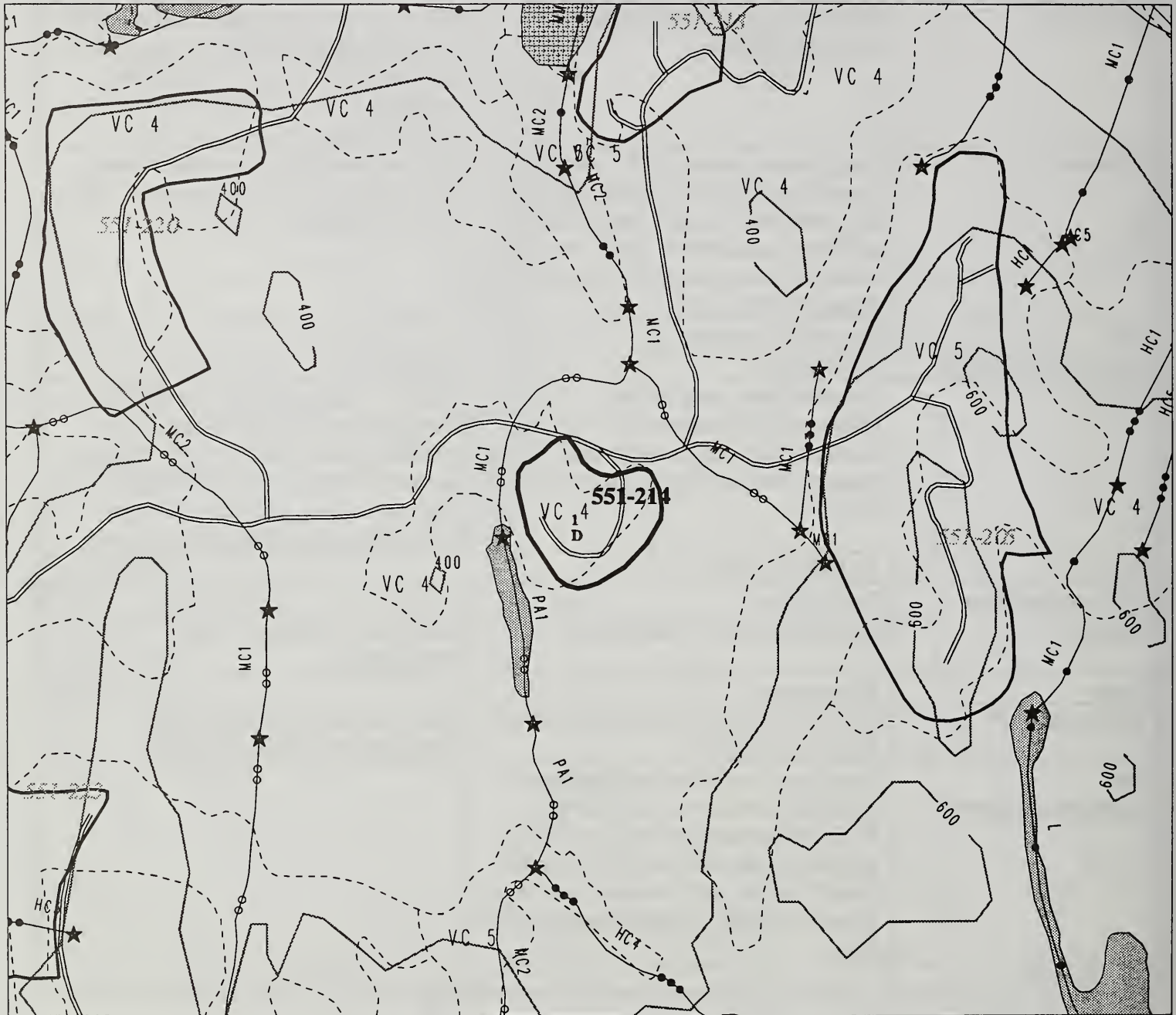
Resource Area	Concerns	Resolution
Silviculture	Saturated soils. Windthrow potential. Cedar regeneration.	Harvest Type E (overstory removal) with specified retention area identified by field personnel. Select cedar >12" dbh for retention. Avoid soil disturbance. PCT hemlock within 10-15 yrs.
Fisheries	Class I stream west of unit - good spawning and rearing habitat. Juvenile coho observed. Class II stream east of unit provides habitat for trout. Retain shade and future source of large woody debris in both streams.	100' required buffer on stream to east. >100' required buffer on stream to west due to topography. BMP 12.6
Soils	No special concerns.	
Water Quality/Quantity	See fisheries.	BMP 14.10
Wildlife	Maintain future snag habitat. Fragmentation of previously unfragmented and unroaded area. Unit is located within an Project-defined small HCA.	Leave ~2-acre area near center of unit (marginal timber) and riparian areas protected with stream buffers. This will achieve Concern Level 1 structure retention. Close all roads on Thorne Island following completion of harvest.
Karst	No karst features.	
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Accessed off of Rd 66-80-28B (115+60) Spurs - (6 STA ±).	Close all roads on Thorne Island following completion of harvest.
Unit Layout/Administration	Swing yard to roadside and designated landings - (small unit, 15-20 acres). Partial suspension <u>not</u> required. Partial suspension should be available over the majority of the unit. Potential to salvage blowdown in the northwest portions of the unit.	
Opportunities		

BMP 12.6, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 551-214

Acres: 13.0



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 551-214 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-255

May 23, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 551-214

Harvest Volume : 10.9 MBF/acre

Acres : 13.0

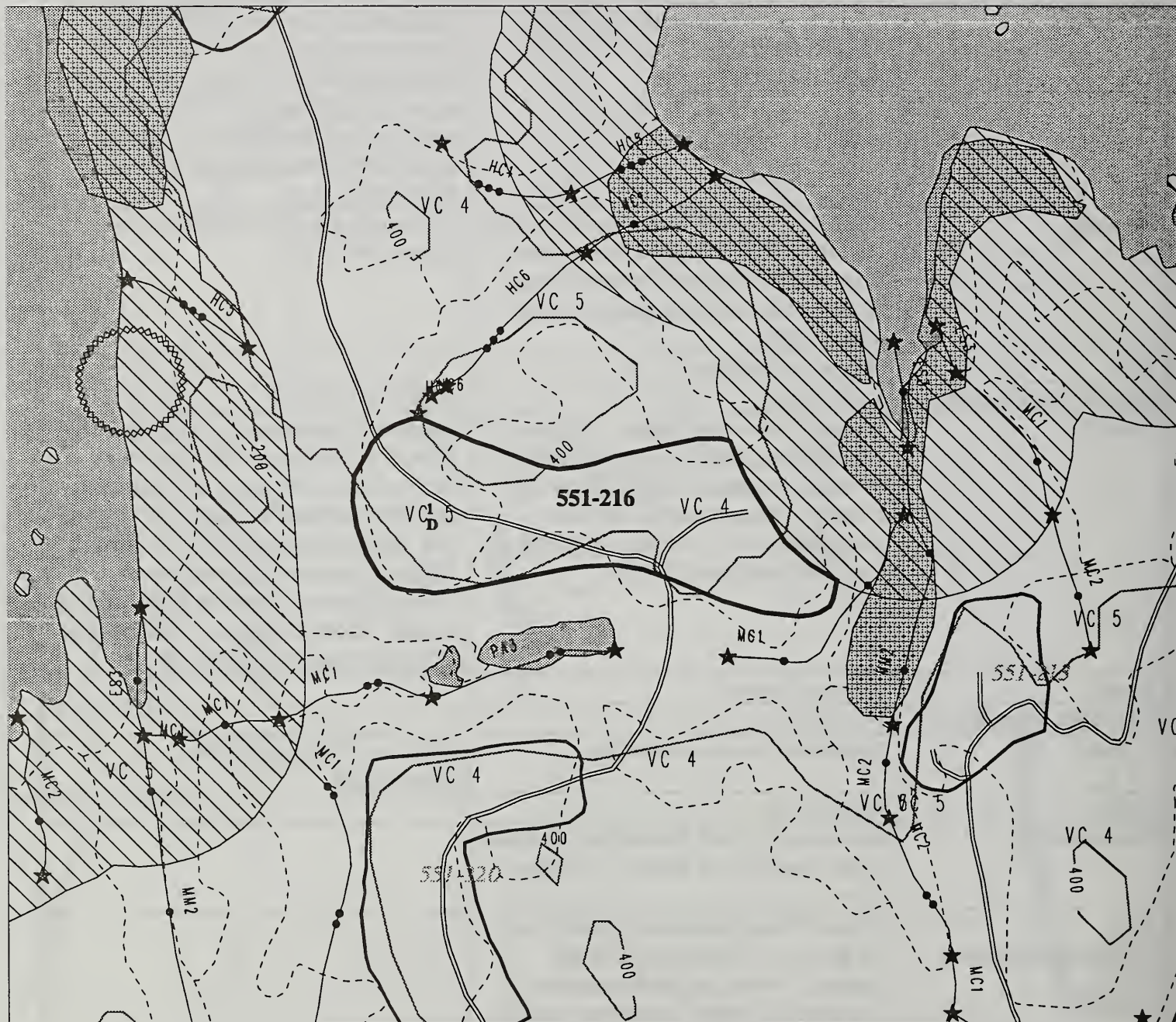
Resource Area	Concerns	Resolution
Silviculture	Low site and soil productivity. Dwarf mistletoe infection.	Regeneration Harvest Type D. Site-specific retention areas within the unit were identified by field personnel. Retain at least 2 yellowcedar/ac between settings and along unit boundaries. Avoid soil disturbance where practical. Consider PCT within 20 yrs.
Fisheries	Class II stream with beaver pond, west of unit, flows into a Class I stream. Large amount of fine sediment in beaver pond. Retain shade and future source of large woody debris.	100' required buffer along Class II stream. BMP 12.6
Soils	No special concerns.	
Water Quality/Quantity	See fisheries.	BMPs 13.15, 14.10
Wildlife	Maintain future snag habitat. High-use wildlife area - beaver ponds to southwest of unit and muskeg to south. Wolf sign observed. Geese observed on pond southwest of unit. Unit located within an Project-defined small HCA.	Maintain Concern Level 1 structure through a 3-acre leave-tree area near center of unit; 100' buffer on riparian area; and, 100' buffer on muskeg south of unit. Implement operating restrictions within a minimum 125 m of goose habitat, if geese are present during critical periods. Close all roads on Thorne Island following completion of harvest.
Karst	No karst features.	
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Accessed off of Rd. 66-80-28B (see Road Card). Spur Rd. 66-80-28.2, 13 stations. None.	
Unit Layout/Administration	Borders Class I stream and beaver pond on the west. Partial suspension <u>not</u> required. Swing yard to roadside and designated landings. Maximum yarding distance 400'-500'.	
Opportunities		

BMP 12.6, 13.15, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 551-216

Acres: 53.1



- | | | | |
|---|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 551-216 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| ★ | Potential Channel Type Change | | |

F-257

April 13, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 551-216

Harvest Volume : 13.9 MBF/acre

Acres : 53.1

Resource Area	Concerns	Resolution
Silviculture	Low productivity soils. Windthrow potential. Saturated soils.	Regeneration Harvest Type D. Retain at least 2 yellowcedar/ac between settings and along unit boundaries. Avoid soil disturbance where practical. Consider PCT within 20 yrs.
Fisheries	Class II stream south of unit with beaver pond near east end. Cutthroat trout observed. Flows into a Class I stream. Retain future source of woody debris. Harvest within HGC buffer will exceed threshold of 25 unit.	>100' required stream buffer due to no merchantable trees, muskeg and lack of tail trees. Provide no harvest buffers on HGC streams within and adjacent to unit where feasible. BMP 12.6
Soils	No special concerns.	
Water Quality/Quantity	See fisheries.	BMP 14.10, 12.7
Wildlife	Maintain integrity of riparian area associated with pond south of unit. High wolf use. Maintain future snag habitat. Fragmentation of previously unfragmented area. Proposed road construction within 1/2 mile of eagle nest. Meets parameters for high quality goshawk habitat. Unit located within an Project-defined small HCA.	1000' estuary buffer. Minimum 100' stream buffer along southwest boundary and 100' ITM along east boundary, in addition to designated retention areas along southern boundary will achieve Concern Level 1 structure retention. Implement 1/2 mile seasonal blasting restrictions. Survey unit for goshawks prior to final layout. Consult with District Biologist regarding timing of road construction and harvest activities. Close all roads on Thorne Island following completion of harvest.
Karst	No karst features.	
Visuals/Recreation	Borders Partial Retention VQO. Road and SW portion of unit visible from salt water.	Screen unit with retention area.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Accessed off of Rd. 66-80-28 (at 46+79), Rd. 66-80-28.1 (5 stations). No concerns.	Close all roads on Thorne Island following completion of harvest.
Unit Layout/Administration	Partial suspension not required. Marginal areas of timber ~<8mbf/ac. Swing yard with roadside and designated landings. Southern boundary tail trees may require twistlers. Estuary buffer along east boundary. Unit not flagged at 1000' from estuary.	Reflag the east unit boundary to reflect established 1000' estuary buffer.
Opportunities		

BMP 12.6, 12.7, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 551-219

Acres: 16.3



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 551-219 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-259

April 13, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 551-219

Harvest Volume : 20.8 MBF/acre

Acres : 16.3

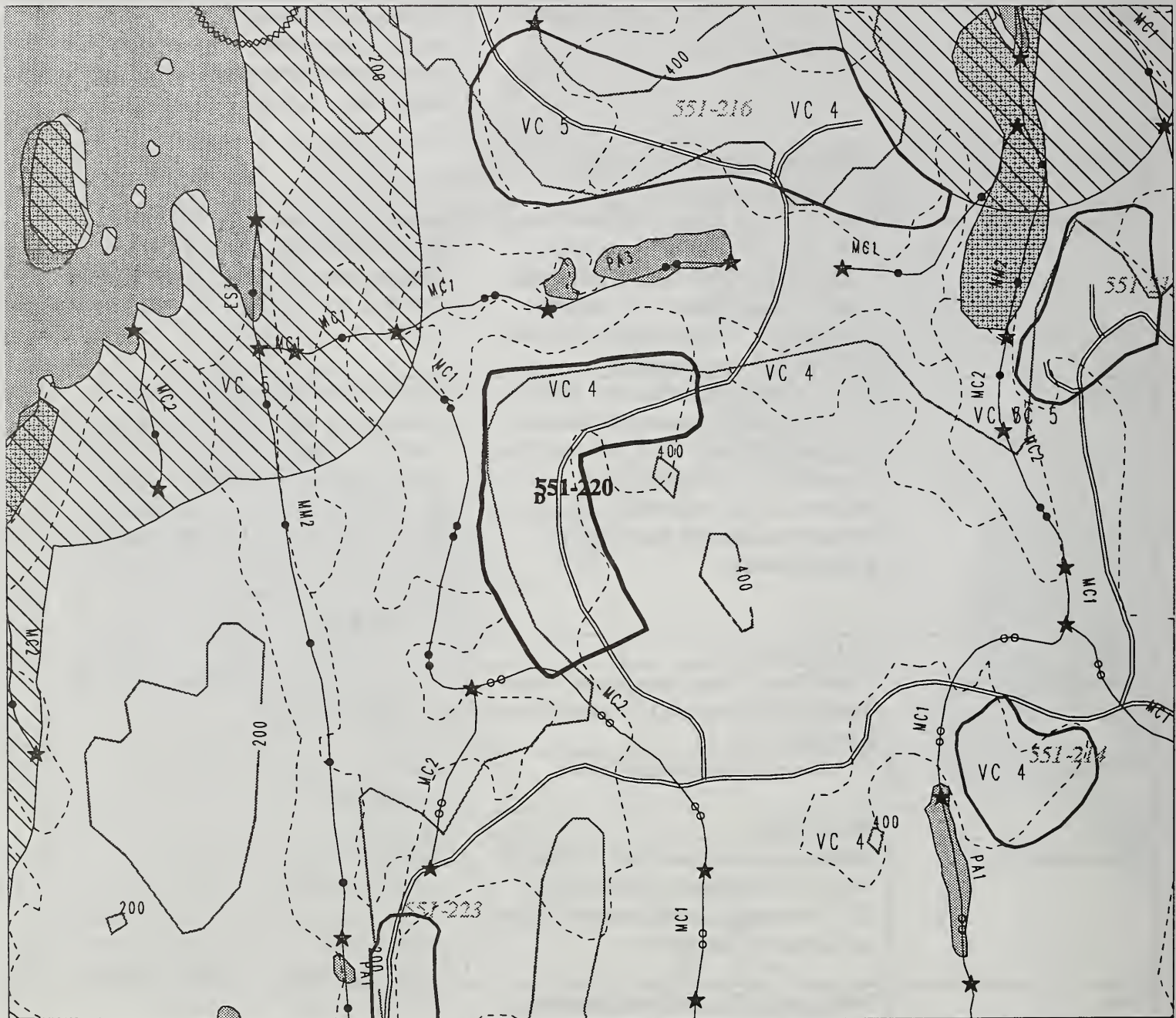
Resource Area	Concerns	Resolution
Silviculture	Soil site productivity. Saturated soils. Windthrow potential.	Regeneration Harvest Type D. Retain at least 2 yellowcedar/ac between settings and along unit boundaries. Avoid soil disturbance. Consider PCT within 20 yrs.
Fisheries	No fish-bearing streams in or near unit.	
Soils	No special concerns.	
Water Quality/Quantity	Class III stream flows northwest through center of unit into small beaver pond. Stream is small, not incised, and stable. Another Class III stream flows north through eastern portion of unit; does not flow into fish-bearing stream.	Directional fall away from identified streams and do not yard logs up the channels. Remove logging-related debris (CT6.51). Apply BMPs 12.7, 13.16, 14.10
Wildlife	Beaver pond and riparian area north of unit - high wildlife use area. Maintain future snag habitat. Entry into previously unentered area. Proposed road construction within 1/2 mile of eagle nest. Meets parameters for high quality goshawk habitat.	Retention area and 100' buffer between unit and pond will achieve Concern Level 1 structure retention. Implement 1/2 mile seasonal blasting restrictions. Survey unit for goshawks prior to final layout. Consult with District Biologist regarding timing of road construction. Close all roads on Thorne Island following completion of harvest.
Karst	No karst features.	
Visuals/Recreation	Visible from Whale Passage (on Thorne Island) in middleground. Adopted Partial Retention VQO.	Leave tree area screens lower portion of unit. Meets VQO.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires construction of Rd. 66-80-28A to E.O.P. 30 stations beyond unit 551-216. Two small muskeg patches crossed and skirted on this segment.	The economic feasibility should be analyzed for road construction versus helicopter logging the unit to a landing in unit 551-216. Close all roads on Thorne Island following completion of harvest.
Unit Layout/Administration	Swing yard half uphill, half downhill. Running skyline; partial suspension for most of unit is possible. Possible hi-lead configuration.	
Opportunities		

BMP's 12.7, 13.16, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 551-220

Acres: 39.2



- | | | | |
|---|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 551-220 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| ★ | Potential Channel Type Change | | |



F-261

April 13, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 551-220

Harvest Volume : 11.4 MBF/acre

Acres : 39.2

Resource Area	Concerns	Resolution
Silviculture	Areas of poor site productivity. Windthrow potential. Mistletoe infection. Saturated soils. Salmonberry incursions.	Regeneration Harvest Type D. Retain at least 2 yellowcedar/ac between settings and along unit boundaries. Consider PCT within 20 yrs.
Fisheries	Class II stream along southwest boundary flows directly into a Class I stream. Retain shade and future source of large woody debris. Also, Class II stream and beaver pond along north unit boundary - flow directly into Class I.	>100' required buffer on both streams due to muskeg, nonmerchantable timber, and lack of tailholds. BMP 12.6
Soils	No special concerns.	
Water Quality/Quantity	See fisheries. Class III v-notch along east boundary - potential to transport sediment to pond.	Locate east boundary on topographic break above Class III stream. Apply BMPs 13.2, 12.7, 14.10
Wildlife	Blowdown, standing dead trees near pond to north of unit. Maintain snag and riparian habitat. High wolf use around pond north of unit. Entry into previously unentered area. Located within an Project-defined small HCA.	Blowdown area is within stream/lake buffer. This, along with the designated retention area and stream buffer on south boundary, will achieve Concern Level 1 structure retention. Consult with District Biologist regarding timing of road construction and harvest activities. Close all roads on Thorne Island following completion of harvest.
Karst	No karst features.	
Visuals/Recreation	Within Maximum Modification VQO.	Retention area will help screen portion of unit visible from saltwater.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires 36 stations of Rd. 66-80-28A, 2 stations where sideslopes are 50-55%.	Close all roads on Thorne Island following completion of harvest.
Unit Layout/Administration	Swing yarder with running skyline and shotgun where possible. Good partial suspension.	
Opportunities		

BMP's 12.6, 12.7, 13.2, 14.10.

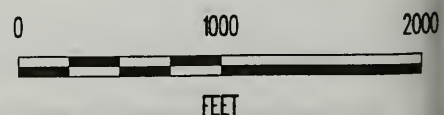
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 551-223

Acres: 29.3



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 551-223 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-263

April 13, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 551-223

Harvest Volume : 18.3 MBF/acre

Acres : 29.3

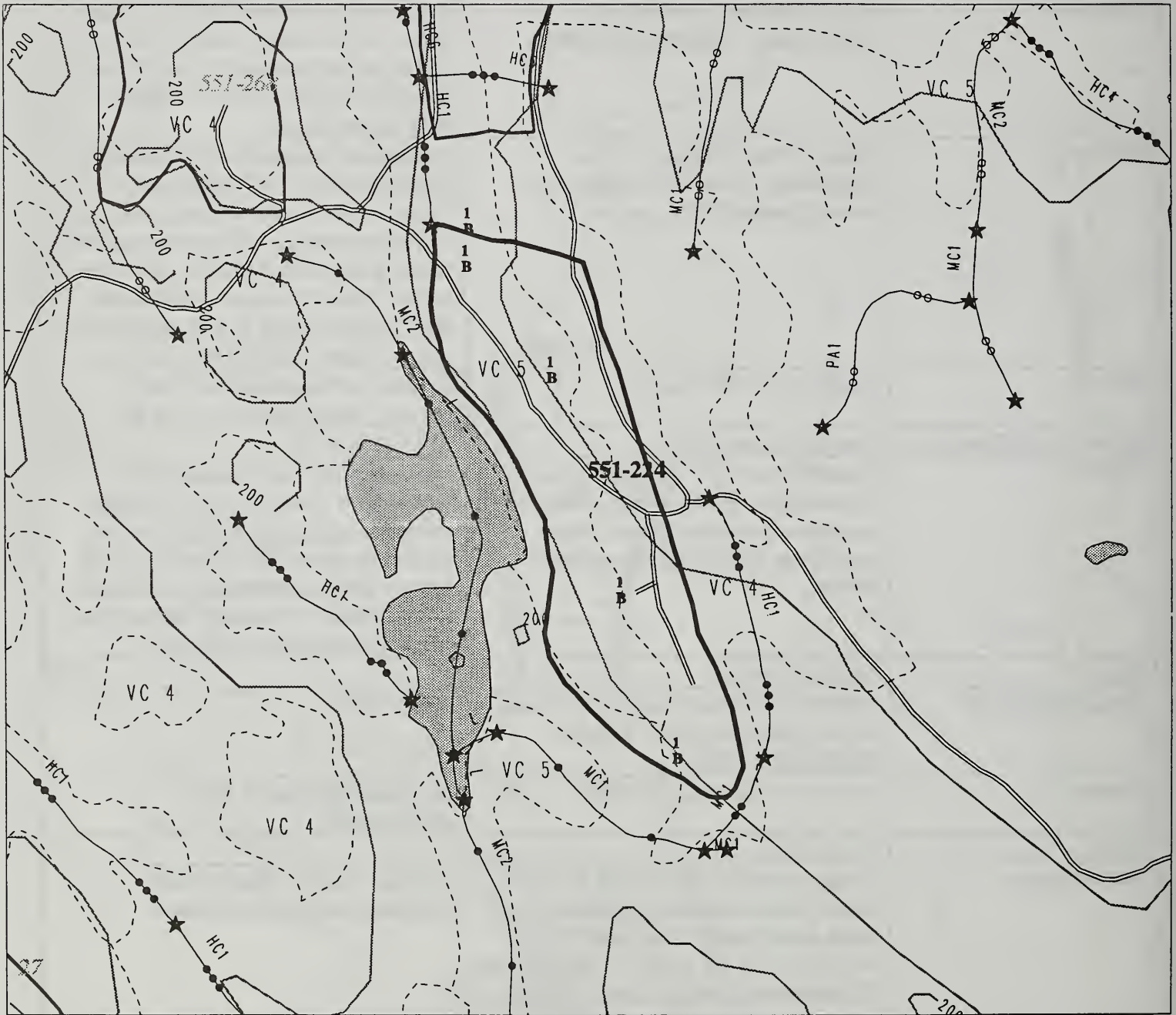
Resource Area	Concerns	Resolution
Silviculture	Areas of poor site productivity. Overstocking. Windthrow potential.	Regeneration Harvest Type A. Retain at least 2 yellowcedar/ac between settings and along unit boundaries. Avoid soil disturbance when practical. Consider PCT within 20 yrs.
Fisheries	Class I stream and pond west of unit. Harvest within HGC buffer will exceed threshold of 25 percent.	Muskeg and nonmerchantable trees along stream result in >100' required buffer along stream. Pond associated with Class I stream requires a 400' selective harvest buffer in addition to the 100' no harvest buffer. Provide no harvest buffers on HGC streams within and adjacent to unit where feasible. Apply BMP 12.6
Soils	Minimize soil disturbance.	Achieve partial suspension where possible. Apply BMPs 13.5, 13.9
Water Quality/Quantity	See fisheries and soils.	BMP 12.7, 14.10
Wildlife	Riparian area with high wildlife use. Maintain future snag habitat. Entry into a previously unentered area. Meets parameters for high quality goshawk habitat.	Maintain >100' buffer along stream. This will achieve Concern Level 1 structure retention. ~750' wide wildlife corridor retained between 551-223 and 551-224. Survey unit for goshawks prior to final layout. Close all roads on Thorne Island following completion of harvest.
Karst	No karst features.	
Visuals/Recreation	Visible from Whale Passage (on Thorne Island) in middleground. Adopted Modification VQO.	Meets VQO.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Logging requires construction of 5500'± of spur road in addition to mainline haul roads which pass through units 551-223 and 224. Spur Rd. 66-80-33 has not been flagged beyond station 23+00, but a 20 station extension of this road will be necessary to harvest the east half of unit 551-223. Easy construction on this extension.	Close all roads on Thorne Island following completion of harvest.
Unit Layout/Administration	Swing yarder for entire unit.	
Opportunities	Conduct water quality and habitat studies to determine fish population in lake. Potential enhancement opportunity.	

BMP's 12.6, 12.7, 13.5, 13.9, 14.10.

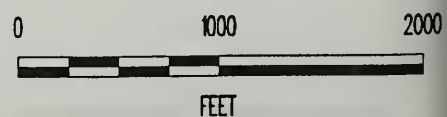
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 551-224

Acres: 71.2



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 551-224 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-265

April 13, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 551-224

Harvest Volume : 20.0 MBF/acre

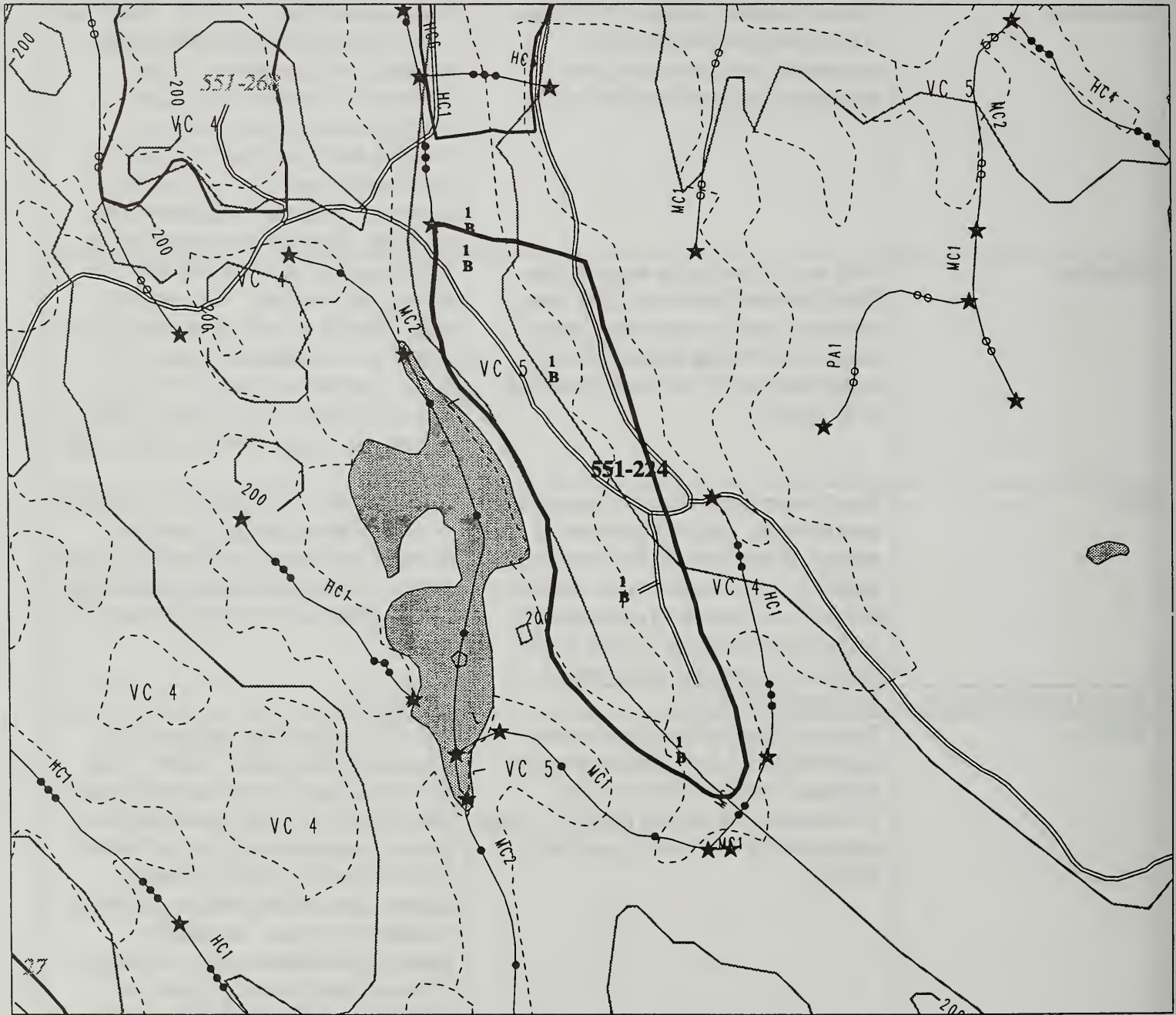
Acres : 71.2

Resource Area	Concerns	Resolution
Silviculture	Areas of poor site productivity. Patches of old windthrow and advanced regeneration occur in some spots throughout the central portion of unit.	Regeneration Harvest Type B. Retain at least 2 yellowcedar/ac between settings and along unit boundaries. Protect patches of advanced regeneration in central portion of unit as much as practical during yarding. Feather north unit boundary to minimize windthrow potential. Avoid soil disturbance when practical. Consider PCT within 20 yrs.
Fisheries	Lake west of unit likely supports fish. Class II stream flows into Class I near southeast; provides spawning/rearing habitat for adfluvial stocks. Harvest within HGC buffer will exceed threshold of 25 percent.	100' no-commercial plus 400' selective harvest buffer on lake. 100' required buffer plus 50' selective harvest buffer on Class I stream southeast of unit. 100' required buffer on Class II. Provide no harvest buffers on HGC streams within and adjacent to unit where feasible. BMP 12.6
Soils	Small slump along west unit boundary goes into lake. Initiated where seeps emerge; sliding surface was lacustrine sediments. Now headscarp is on bedrock and slide area is naturally revegetating. High risk of windthrow; do not retain standing trees around slump area.	Fall trees away from slump area and yard away from slump surface to minimize disturbance of young trees and vegetation. Achieve at least partial suspension where slopes >60%. Apply BMPs 13.5 and 13.9
Water Quality/Quantity	See fisheries and soils.	BMP 14.10
Wildlife	Lake and adjacent riparian area show high wildlife use including observations of geese. Maintain travel corridor between lake and muskeg on ridge. Meets parameters for high quality goshawk habitat.	100'-150' buffer along lake plus 400' selective harvest buffer. Retain ~750'-wide swath north of unit during this entry. This, in addition to the stream buffers and harvest prescription will meet or exceed Concern Level 1 structure retention. Feather north unit boundary to minimize windthrow potential. Implement operating restrictions within a minimum 125 m of goose habitat, if geese are present during critical periods. Survey unit for goshawks prior to final layout. Close all roads on Thorne Island following completion of harvest.
Karst	No concerns.	
Visuals/Recreation	Possible recreational fishing opportunities. Visible from Whale Passage (on Thorne Island) in middleground. Adopted Modification VQO.	Meets VQO.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	

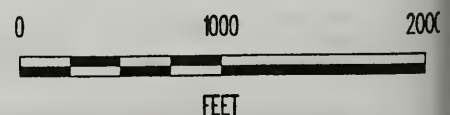
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 551-224

Acres: 71.2



- | | | | |
|---|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 551-224 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| ★ | Potential Channel Type Change | | |



F-267

April 13, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 551-224 (Continued)

Transportation	Logging requires construction of 2300' of spur road in addition to mainline haul roads. Spur Rd. 66-80-33 has not been flagged beyond station 23+00.	Close all roads on Thorne Island following completion of harvest.
Unit Layout/ Administration	Swing yarder for entire unit. Landing accessed by spur Rd. 66-870-33A1 may require earth anchor or caterpillar for guy support. TTRA buffer not flagged on Class II stream at southeast boundary.	100' TTRA buffer needs to be established on Class II stream at southeast corner of unit.
Opportunities		

BMP's 12.6, 13.5, 13.9, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 551-227

Acres: 87.0



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 551-227 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-269

April 13, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 551-227

Harvest Volume : 13.6 MBF/acre

Acres : 87.0

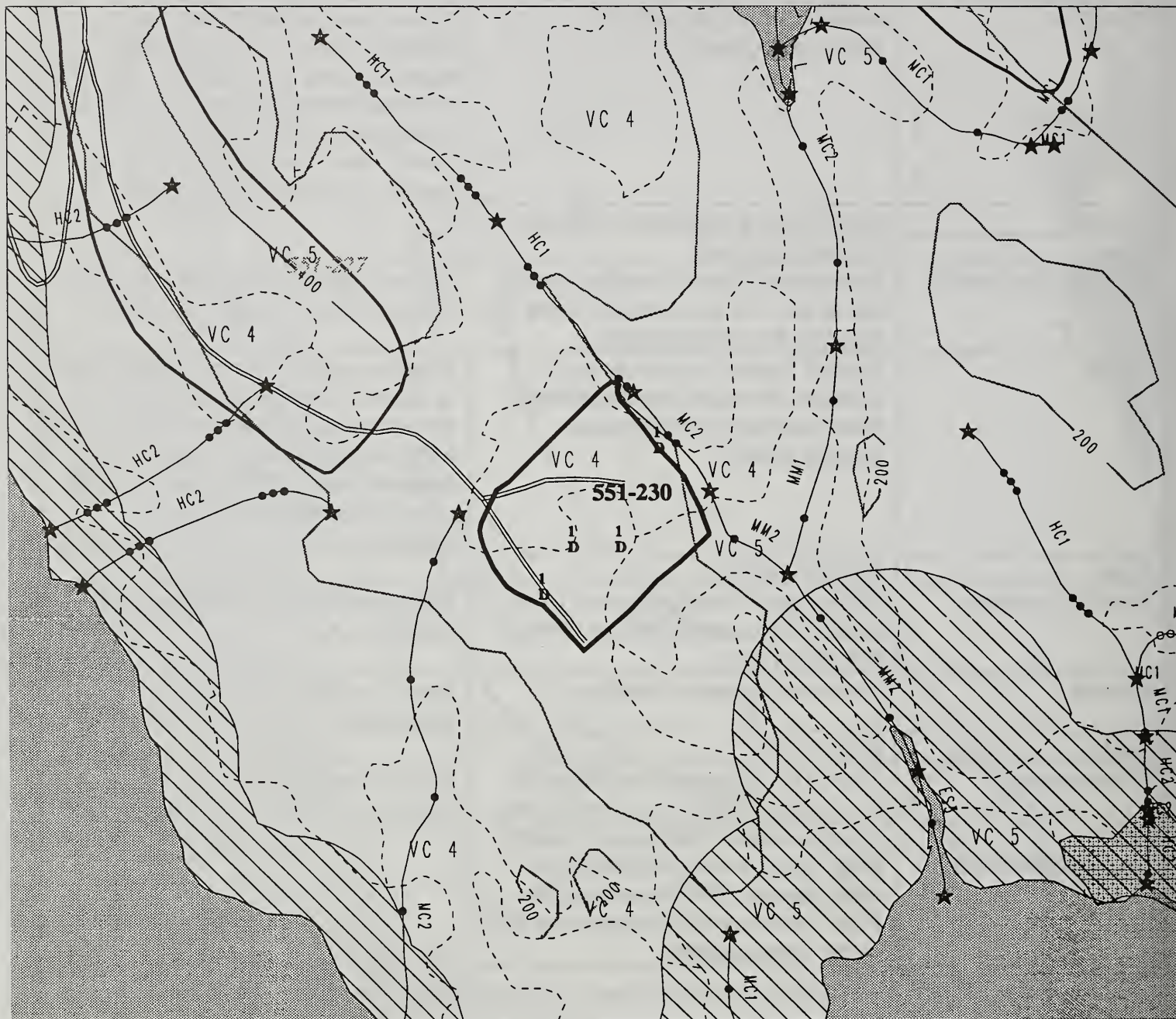
Resource Area	Concerns	Resolution
Silviculture	Areas of low site productivity. Windthrow potential.	Regeneration Harvest Type D using stripcuts. Patch cut with corridors, retaining approx 1/3 of the unit. Select for harvest every other corridor to reduce chance of windthrow and break up visuals. Avoid soil disturbance where possible. Consider PCT within 20 yrs.
Fisheries	No fish bearing streams in or near unit.	
Soils	No special concerns.	
Water Quality/Quantity	Several small Class III streams in south half of unit - <2' active channel width - do not affect fish-bearing streams.	Remove logging-related debris following yarding (CT6.51). BMP 12.7, 14.10
Wildlife	Maintain forested corridor along shoreline. Maintain future snag habitat. Meets parameters for high quality goshawk habitat.	Concern Level 1 structure retention would be achieved through harvest prescription and retention of remaining standing trees within windthrow area. Survey unit for goshawks prior to final layout. Close all roads on Thorne Island following completion of harvest.
Karst	No karst resources.	
Visuals/Recreation	Visible from Whale Passage (on Thorne Island) in foreground. Adopted Partial Retention VQO.	500' shoreline buffer. Stripcuts meet Adopted VQO.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Near LTF. Accessed off of Rd. 66-80-04. See Rd. 66-80-04 road card. None.	Close all roads on Thorne Island following completion of harvest.
Unit Layout/Administration	Partial suspension not required. Swing boom yarder; leave immature timber where possible. 500' shoreline buffer. Patch cut and corridor logging to get best timber where possible.	
Opportunities		

BMP's 12.7, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 551-230

Acres: 31.2

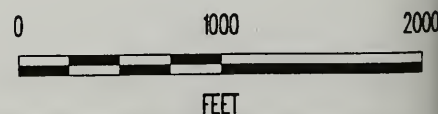


- Project Boundary
- Unit 551-230
- Other Units
- - - Timber Type Boundary
- o o o o o Eagle Nest Buffer (330ft)
- Existing Roads
- Proposed Roads
- • Class I Stream
- •• Class IIa Stream
- ••• Class IIb Stream
- •••• Class III Stream



Potential Channel Type Change

- Water
- Beach Fringe/Estuary
- Second Growth
- 200 ft contours



F-271

April 13, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 551-230

Harvest Volume : 12.1 MBF/acre

Acres : 31.2

Resource Area	Concerns	Resolution
Silviculture	Saturated soils. Small amount of windthrow. Low site productivity.	Regeneration Harvest Type D. Retain at least 2 yellowcedar/ac between settings and along unit boundaries. Retain area of unmerchantable timber in south portion of unit. Avoid soil disturbance where practical. Consider PCT within 20 yrs.
Fisheries	Class III stream flows into a Class I stream along northeast boundary. Shows fair rearing habitat. Steep upper banks. Retain riparian vegetation for root stability.	100' required buffer along Class I stream as well as along Class III stream due to topography. Apply BMP 12.6, 12.7
Soils	No special concern.	
Water Quality/Quantity	Class III stream flows along southeast boundary. Small, slightly incised, stable. See fisheries.	Remove logging-related debris (CT6.51). Apply BMP 12.7, 14.10
Wildlife	Entry into previously unaltered area. Maintain future snag habitat.	Concern Level 1 structure would be achieved through 100' stream buffer and leave area of standing dead trees in southern portion of unit. Yard away from this area. Close all roads on Thorne Island following completion of harvest.
Karst	No karst resources.	
Visuals/Recreation	Visible from Whale Passage (on Thorne Island) in middleground. Adopted Modification VQO.	Retain area in south for visual buffer, as shown on map Meets VQO.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires construction of Rd. 67-80-04B to stations 35+00 and spur Rd. 67-80-04.3 (7 stations) with 1 stations of 70% sideslope.	Close all roads on Thorne Island following completion of harvest.
Unit Layout/Administration	Swing yarder recommended. Tailholds beyond Class I in northeast corner. Greater than 100' buffer flagged along stream on northeast boundary due to topography.	
Opportunities		

BMP's 12.6, 12.7, 14.10.

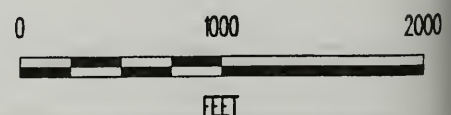
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 551-261

Acres: 20.8



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 551-261 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-273

April 13, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 551-261

Harvest Volume : 5.7 MBF/acre

Acres : 20.8

Resource Area	Concerns	Resolution
Silviculture	Saturated soils; low site productivity within south 1/2 of unit; slope instability within north 1/2. Yarding may cause soil displacement and erosion in south 1/2 of unit.	Harvest Type I - single tree/group selection prescription - will be implemented due to visual concerns. Avoid soil disturbance where practical.
Fisheries	Class II stream flows southeast along northeast boundary. Numerous trout observed. Small slides and bank erosion on very steep sideslopes into stream. High risk of windthrow. Retain windfirm buffer for bank stability.	Locate northeast unit boundary 100' from topography break into stream. Apply BMPs 12.6, 12.7, 13.2, 13.5
Soils	High MMI soils	Achieve at least partial suspension throughout unit. BMPs 13.5, 13.9
Water Quality/Quantity	See fisheries.	BMP 14.2, 14.3, 14.7, 14.8, 14.10
Wildlife	Entry into previously unaltered area. Maintain snag habitat. Proposed road construction within 1/2 mile of eagle nest.	Riparian buffers and areas of single tree harvest/group selection for visuals will provide diversity in and adjacent to unit, achieving Concern Level 1 structure retention. Implement 1/2 mile seasonal blasting restrictions. Close all roads on Thorne Island following completion of harvest.
Karst	No karst resources.	
Visuals/Recreation	Visible from saltwater. Areas of low VAC within unit.	Single tree or group selection in 2-3 acre patches in areas of low VAC (see map). Retain 40% of basal area in unit.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires construction of Road 66-80-33C (4 stations) and 27 stations of Road 66-80-33B. Economic feasibility of road construction should be analyzed versus helicopter logging. Accessing top of unit with road should also be investigated which would allow better implementation of the silvicultural prescriptions.	Close all roads on Thorne Island following completion of harvest.
Unit Layout/Administration	Swing yarder recommended due to versatility for partial cut. Partial cuts ≤ 2 acres in some areas due to visual concerns. Guy stumps require twistlers. Partial suspension required and is available; however, more profiles should be run to determine all of the boundaries.	Reflag northeast unit boundary at 100' from topographic break above stream to reduce chance of sediment input to stream.
Opportunities		

BMP's 12.6, 12.7, 13.2, 13.5, 13.9, 14.2, 14.3, 14.7, 14.8, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 551-263

Acres: 20.5



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|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 551-263 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-275

April 13, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 551-263

Harvest Volume : 19.2 MBF/acre

Acres : 20.5

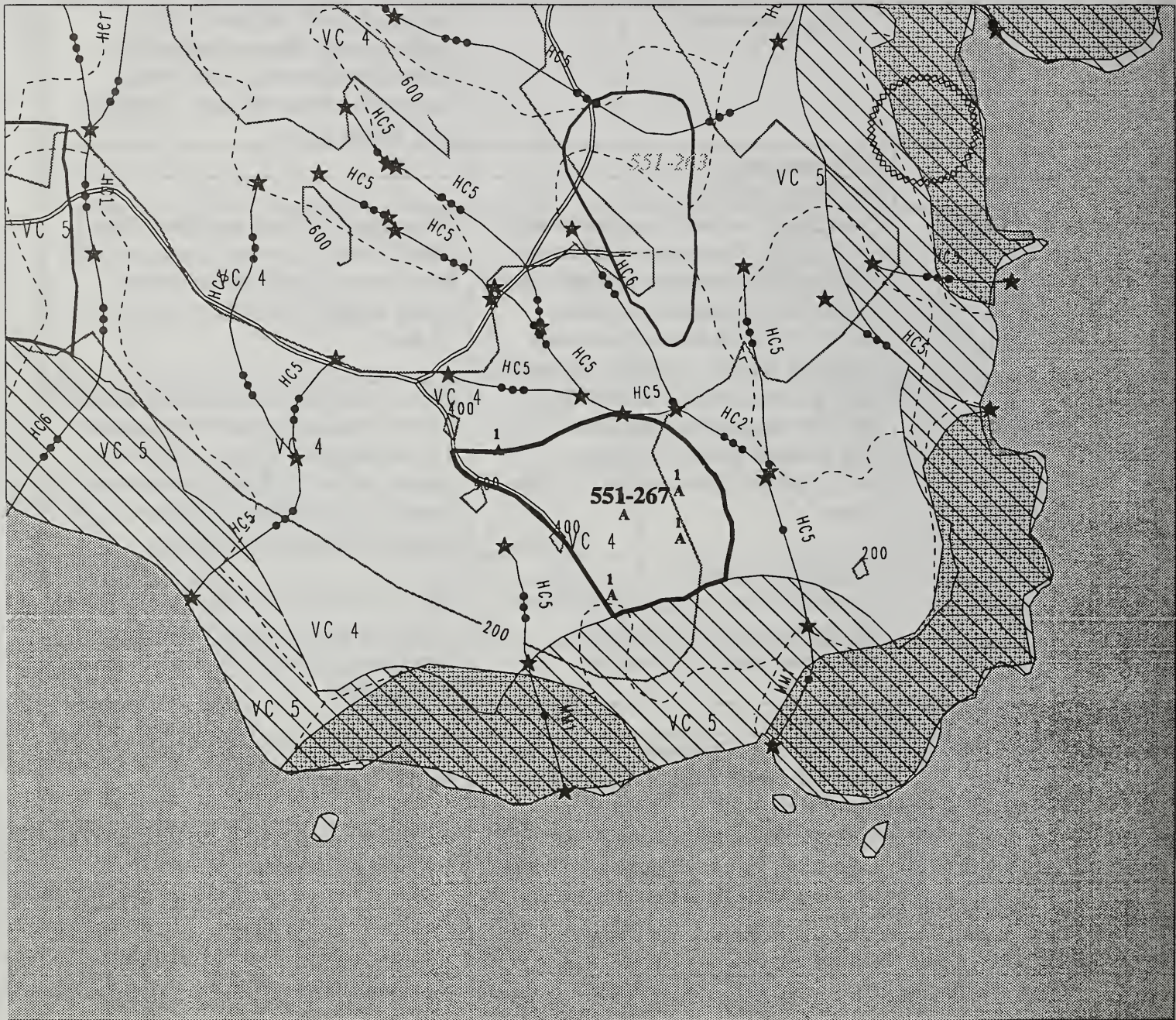
Resource Area	Concerns	Resolution
Silviculture	Low site productivity.	Harvest Type B. Retain at least 2 yellowcedar/ac between settings and along unit boundaries. Avoid soil disturbance where practical. Consider PCT within 20 yrs.
Fisheries	See water quality.	
Soils	No special concerns.	
Water Quality/Quantity	One Class III stream flows east through unit and into Class I stream below unit. Small confined channel with stable banks; yarding of logs could dig up banks. Another Class III stream flows south along east boundary - small seep channel.	Directionally fall and yard away from Class III stream in unit. Locate east unit boundary to west of stream channel. Apply BMPs 12.7, 13.2, 13.16, 14.8, 14.10
Wildlife	Entry into previously unaltered area. Maintain snag habitat. Implement 1/2 mile seasonal blasting restrictions. Survey unit for goshawks prior to final layout.	Harvest prescription will achieve Concern Level 1 structure retention. Implement 1/2 mile seasonal blasting restrictions. Survey unit for goshawks prior to final layout. Close all roads on Thorne Island following completion of harvest.
Karst	No karst resources.	
Visuals/Recreation	North end of unit visible from saltwater on the east side of Thorne Island.	Area of poor timber excluded from north unit boundary will help meet VQO.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Mainline 66-80-33 passes through unit. Requires construction of Rd. 66-80-33A (4 sta. spur).	Close all roads on Thorne Island following completion of harvest.
Unit Layout/Administration	Recommend swing yarder with running large tower for partial suspension. Small blind lead area at southern tip of unit.	Reflag boundary to exclude blind leads on northeast and south unit boundaries.
Opportunities		

BMP's 12.7, 13.2, 13.16, 14.8, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 551-267

Acres: 28.9



- Project Boundary
- Unit 551-267
- Other Units
- - - Timber Type Boundary
- ⋄ Eagle Nest Buffer (330ft)
- Existing Roads
- Proposed Roads
- Class I Stream
- Class IIa Stream
- Class IIb Stream
- Class III Stream

★ Potential Channel Type Change

- Water
- Beach Fringe/Estuary
- Second Growth
- 200 ft contours



F-277

April 13, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 551-267

Harvest Volume : 13.3 MBF/acre

Acres : 28.9

Resource Area	Concerns	Resolution
Silviculture	Saturated soils in southern 1/2 of unit. Slope instability.	Regeneration Harvest Type A. Retain at least 2 yellowcedar/ac between settings and along unit boundaries. Avoid soil disturbance where practical. Consider PCT within 20 yrs.
Fisheries	Class I streams along east boundary has adequate habitat for salmon and trout. No natural barriers, but slash from previous A-frame logging clogs stream-impassable to salmon.	100' required buffer on stream. Remove wood in lower reach - retain some for structure but provide passage. BMPs 12.6, 12.7.
Soils	High MMI soils in west half.	Defer harvest in west half of unit. BMPs 13.5, 13.9
Water Quality/Quantity	See fisheries.	BMP 14.10
Wildlife	Maintain forested corridor along shoreline. Maintain snag habitat. Entry into previously unaltered area. Proposed road construction within 1/2 mile of eagle nest.	The following will achieve Concern Level 1 structure retention: 500' shoreline buffer on southwest boundary; 1000' estuary buffer on southeast boundary; and deferral of west half of unit. Implement 1/2 mile seasonal blasting restrictions. Close all roads on Thorne Island following completion of harvest.
Karst	No karst features,	
Visuals/Recreation	West half is visible in foreground from Whale Passage. Adopted Partial Retention VQO.	500' shoreline buffer and deferral of west half of unit will serve to meet VQO.
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires 20 stations Rd 66-80-33.2 spur from mainline 66-80-33. Easy construction.	Close all roads on Thorne Island following completion of harvest.
Unit Layout/Administration	East half of unit flagged on ground. Profile analysis shows that south half of west line needs to be moved approximately 200' east to meet minimum payload capabilities. West half of unit has high MMI soils and was not flagged on the ground.	Harvest east half of unit with swing yarder. Drop west half of this unit from harvest plan. Adjust south unit boundary on east half to achieve minimum 1000' estuary buffer.
Opportunities	Open up stream clogged with slash from A-frame logging - see fisheries.	

BMP's 12.6, 12.7, 13.5, 13.9, 14.10.

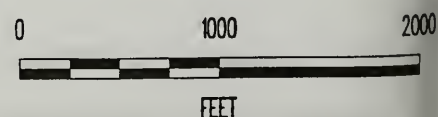
LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 551-268

Acres: 30.4



- | | | | |
|--|-------------------------------|--|----------------------|
| | Project Boundary | | Water |
| | Unit 551-268 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-279

April 13, 1995

**UNIT PLAN & LAYOUT CARD
LAB BAY PROJECT AREA**

Unit #: 551-268

Harvest Volume : 11.5 MBF/acre

Acres : 30.4

Resource Area	Concerns	Resolution
Silviculture	Windthrow potential. Low productivity soils.	Regeneration Harvest Type B. Retain at least 2 yellowcedar/ac between settings and along unit boundaries. Avoid soil disturbance where possible. Consider PCT within 20 yrs.
Fisheries	Class II stream west of unit - retain riparian vegetation for bank stability, shade, future source of large woody debris (LWD).	100' required buffer along Class II stream west of unit. 100' buffer plus 400' selective harvest buffer on lake northeast of unit. BMP 12.6
Soils	No special concerns.	
Water Quality/Quantity	See fisheries.	BMP 14.10
Wildlife	Entry into previously unaltered area. A pond and muskeg near NE corner are high-use wildlife areas.	NE corner located 100' from lake. Lake gets a 400' selective harvest buffer as well. This, in addition to the harvest prescription and the 100' Class II buffer along the west boundary, will achieve Concern Level 1 structure retention. Close all roads on Thorne Island following completion of harvest.
Karst	No karst features.	
Visuals/Recreation	No concerns.	
Cultural	No cultural resources identified.	Report any findings to Forest archaeologist.
Lands	No concerns.	
Transportation	Requires 10 station spur Rd. 67-80-04.2 from mainline Rd. 67-80-04A. No major concerns.	Close all roads on Thorne Island following completion of harvest.
Unit Layout/Administration	Recommend swing yarder - unit bordered by timbered, muskeg-like ground on all sides makes tailholds marginal for large tower. Partial suspension marginal with swing yarder.	
Opportunities		

BMP 12.6, 14.10.

LAB BAY PROJECT HARVEST UNIT DESIGN CARD

Unit #: 551-999

Acres: 218.0



- | | | | |
|--|-------------------------------|--|---------------------------|
| | Project Boundary | | Water |
| | Unit 551-999 | | Beach Fringe/Estuary |
| | Other Units | | Second Growth |
| | Timber Type Boundary | | 200 ft contours |
| | Eagle Nest Buffer (330ft) | | No-Harvest Stream Buffers |
| | Existing Roads | | |
| | Proposed Roads | | |
| | Class I Stream | | |
| | Class IIa Stream | | |
| | Class IIb Stream | | |
| | Class III Stream | | |
| | Potential Channel Type Change | | |



F-281

June 09, 1995

UNIT PLAN & LAYOUT CARD LAB BAY PROJECT AREA

Unit #: 551-999

Harvest Volume : 18.0 MBF/acre

Acres : 218.0

Resource Area	Concerns	Resolution
Silviculture	Uneven-aged management plan for Thorne Island.* 109 - 2-acre patch cuts (18 of these patch cuts are within the beach fringe).	Regeneration Harvest Type C within each 2-acre patch cut. Retain at least 2 trees/ac (preferably yellowcedar), greater than 15" dbh, within the interior of the unit. Helicopter yard. PCT productive sites during second harvest entry (15 year entry period).
Fisheries	Protect fisheries habitat.	Maintain required stream buffers. BMPs 12.6, 12.7.
Soils	Minimize soil erosion and displacement.	Full suspension obtained by helicopter yarding. BMP 13.9.
Water Quality/Quantity	Protect water quality.	Maintain required stream and lake buffers. BMP's 12.6, 12.7, 13.2, 13.3, 13.5.
Wildlife	Previous entry onto Thorne Island has been through A-frame logging along the shoreline. No previous entry into the interior of the island. A Project-defined small HCA is located on the northern end of the island.	2-acre patch cuts are designed to mimic natural disturbances; habitat should be maintained. The retention of trees within each patch cut will maintain Level 1 structure. Avoid any wolf/bear dens. Implement timing restrictions for waterfowl and eagles as necessary. Harvest within the small HCA will be deferred for this entry.
Karst	No karst features.	
Visuals/Recreation	18 patch cuts proposed within beach fringe may be visible from saltwater.	2-acre patch cuts mimic natural disturbances and should blend into the landscape.
Cultural	No cultural resources have been identified within or adjacent to proposed patch cuts. Majority of patch cuts have not been surveyed for cultural resources.	Surveys of all patch cuts within the high probability zones will be conducted prior to implementation of this plan.
Lands	No concerns.	
Transportation	Road building and LTF construction is not necessary for this plan.	Helicopter yard will be used to transport logs to a barge anchored offshore for bundling.
Unit Layout/Administration	Additional field verification may be necessary for patches located in areas that have not received previous reconnaissance.	Final layout can be conducted through photo interpretation of patch location and boundary travers of patch size.
Opportunities		

BMP's 12.6, 12.7, 13.2, 13.3, 13.5, 13.9.

*A detailed discussion of this management plan is found in Appendix E.

Appendix G

Sample Integrated Sivicultural Prescriptions

LAB BAY EIS -- UNIT RESOURCE DATA SHEET & PRESCRIPTION

UNIT NO.: 527-206 LUD: 12 ACRES: 72
MGT. AREA: K01 QUAD: B5SW PHOTO NO.: 1290-71(1991)

UNIT ATTRIBUTES

ELEVATION: <u>220-540</u>	FT.	FOREST TYPE: <u>HEMLOCK</u>
AVG. SLOPE: <u>30</u>	%	AGE: <u>150+</u>
ASPECT: <u>NW</u>		PLANT ASSOC.: <u>120</u>
SOIL MAP UNIT: <u>442CE</u>		SITE INDEX: <u>80+</u>
MMI HAZARD: <u>2</u>		UNIT VOL.: <u>2,246</u> MBF
LANDFORM <u>RIDGETOP,</u>		ACRES: VC4 <u>4</u> VC5 <u>15</u>
<u>MOUNTAIN SLOPE</u>		ACRES: VC6 <u>51</u> VC7 <u></u>
Exam Type: <u>Walk Through</u>		ACRES: Undesignated <u>2</u>

STAND/UNIT DESCRIPTION

This is a multi-storied old growth stand composed of mostly western hemlock and Sitka spruce, with some western redcedar. Natural regeneration is abundant in the understory and consists of hemlock and spruce seedlings. *Vaccinium* understory vegetation is present in most areas of the unit. Unit is located on the east face of the ridge above the community of Port Protection. The western unit boundary is immediately adjacent to the private land. There is a high windthrow potential along the west boundary. Unit contains a moderate level of mistletoe infection in the western hemlock. Unit was identified as high vulnerability karst in Phase 2 karst study and contains solution channels. Because of karst geology this area is potentially within the Port Protection domestic water supply watershed. A class III stream is located along the south eastern unit boundary and other small high gradient contained streams enter unit from the north. An unconfirmed goshawk siting was made in this area during unit layout.

INTEGRATED MANAGEMENT GOALS/OBJECTIVES

This area has been allocated to Land Use Designation III in the current Forest Plan (TLMP 1979, as amended). The emphasis of this area is on managing for both amenity and commodity oriented uses in a compatible manner to provide the greatest combination of benefits. Potential timber yields are reduced to the extent needed to protect important biological and aesthetic values.

This area has been allocated to the Scenic Viewshed Land Use Designation in the Proposed Revised Forest Plan (Alt. P,

TLMP Draft Revision, 1991). The emphasis of this area is to provide scenic landscapes, vistas, and travel corridors. Management activities, including timber harvesting, are typically small, affect only a small percentage of the viewshed, and are not evident to the casual observer.

The objective for harvesting this unit is to provide volume to the KPC long-term timber sale or the Ketchikan Area independent timber sale program.

STAND GOALS

1. The desired future condition of this unit is to produce a vigorous second-growth stand of mixed species that will yield sawlog size and quality products at the end of the next rotation.
2. Reduce the presence of mistletoe and other pathogens in the area and minimize the risk of infecting regeneration.
3. A sensitive visual area around Port Protection requires a harvest type that will meet modification VQO.
4. Avoid trespass and falling timber across property lines.
5. Minimize the risk of erosion and sedimentation into class III streams to protect domestic water supply.
6. Do not exceed harvest of 25 percent of the high gradient contained class III streams within the watershed.
7. Mitigate the loss of structural diversity for wildlife.
8. Minimize the amount of roads remaining open after harvest.
9. Protect karst features within the unit to meet interim standards and guidelines.

UNIT PRESCRIPTION

Goals 1,2,3 Harvest will be conducted using a running skyline throughout the unit.

Type B clearcut is used on three settings, which leaves some merchantable reserve trees and all unmerchantable trees along the unit edges and between internal setting boundaries. Selection of leave trees is based on windfirmness and logging safety standards. Leave trees along unit boundaries are retained in a range of size classes to provide for a multi-storied canopy condition and reduce the potential for windthrow.

Type D clearcut is used in one setting, where groups or strips are retained between patches of clearcut timber. Reserve tree islands or strips will be left in areas where there are resource concerns or where visual screening would be enhanced.

Type H shelterwood is used on the southern setting, where 50 percent of the merchantable tree canopy (basal area) is left scattered across the unit to provide a visual buffer in a sensitive viewshed.

Goal 2 Mistletoe-free co-dominant trees should be marked for retention within 100 feet of the west boundary to provide a windfirm and visual buffer.

Goal 4 The adjacent property line should be surveyed to avoid trespass.

Goal 5 Partial suspension is required throughout the unit to minimize risk of erosion and sedimentation to class III streams and domestic water supply.

Goal 6 Retain 50 percent of the basal area within 100 foot buffers on each side of class III high gradient contained streams to prevent exceeding 25 percent watershed threshold.

Goal 7 A 1 to 2 acre island of mistletoe-free trees should be left in the east portion of Setting No. 2 to provide for future stand structure and wildlife habitat diversity.

Goal 8 The access road will be closed after harvest is completed to meet road management objectives.

Goal 9 A dye tracer groundwater study will be conducted to determine connection, or lack thereof, to the domestic water supply.

STAND DEVELOPMENT

This unit will likely meet NFMA reforestation requirement, using natural regeneration and retention of understory seedlings, within 3 years after completion of harvest. A regeneration survey must certify adequate restocking within 5 years after completion of harvest. Abundant western hemlock regeneration is expected due to the high amounts of existing understory hemlock seedlings and the past success of natural regeneration of hemlock from surrounding stands. Sitka spruce and western redcedar is expected to be present in lower percentages than the existing stand composition. Cedar will restock wetter areas, while spruce will restock areas where soil disturbance has occurred.

Review the stand for a precommercial thinning treatment opportunity at 12 years following harvest. Precommercial thinning will be conducted at approximately 15 years of age to reduce stocking density and maintain understory forage composition for wildlife habitat. Thinning will be

conducted at approximately 16'x16' spacing (175 trees per acre), using variable or equilateral spacing to achieve the stocking objective. Western hemlock will be thinned heavier than other species due to its greater presence in the stand. This will provide for a more equal mix and diversity of tree species.

Review the stand for a commercial thinning treatment opportunity at 50 years following harvest. Commercial thinning opportunities are expected within the entire unit due to its plant association series and high site productivity. Commercial thinning can be conducted on all uphill yarding settings within the unit with a swing yarder.

The unit is expected to achieve a multi-storied, closed canopy stand of mixed hemlock, spruce, and cedar upon the completion of the rotation at approximately 100 years. Stand structural diversity will be provided through the retention of sub-merchantable and merchantable trees along the unit boundary and between settings.

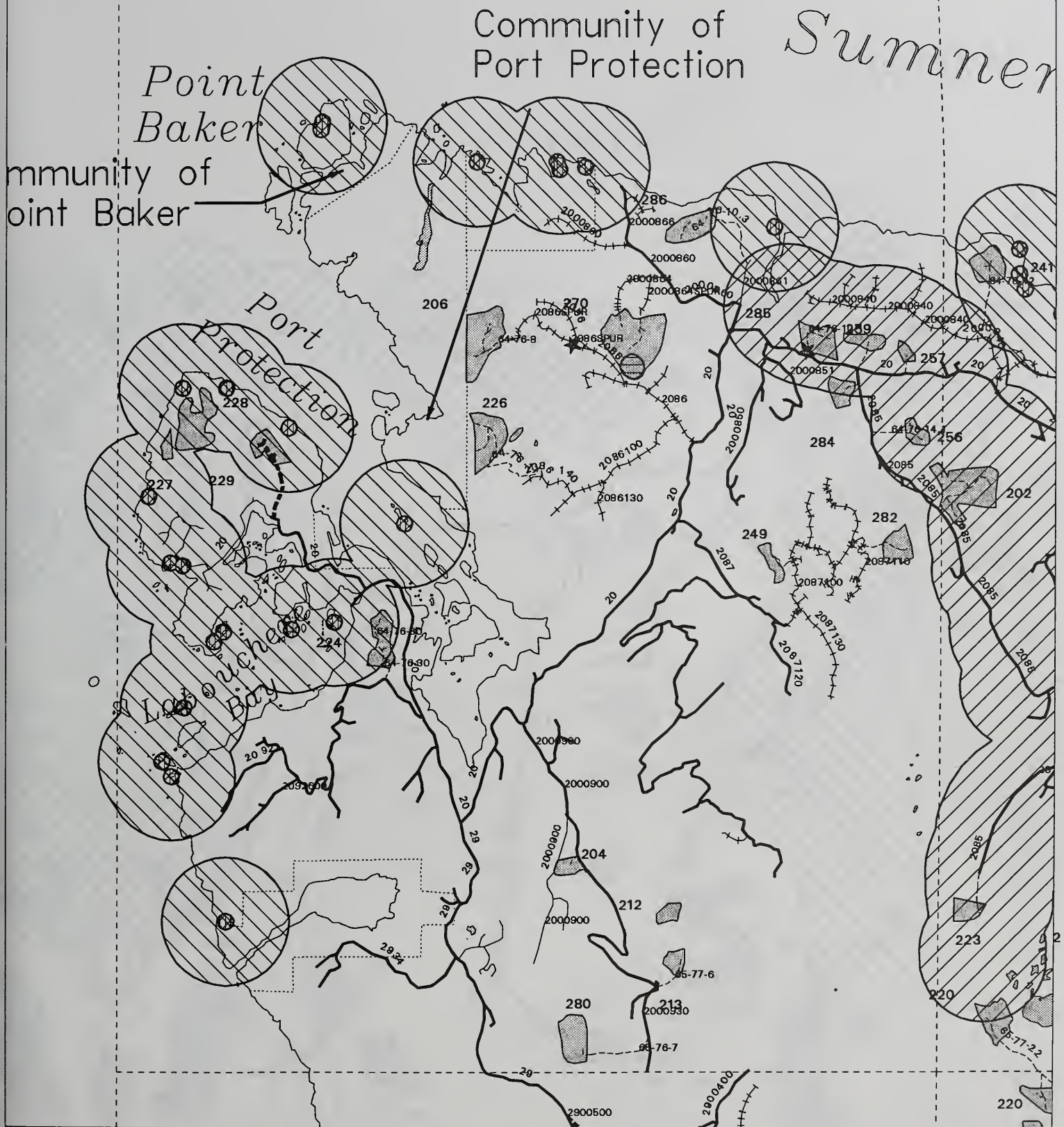
PREPARED BY: L. James Brady DATE: 6/2/95

REVIEWED BY: _____ DATE: _____

Appendix H

Road Cards





Quad B5SW

- Existing Roads - Currently Open
- Existing Roads - Proposed for Closure
- +++ Existing Roads - Currently Closed
- Proposed Roads - To Remain Open
- Proposed Roads - Proposed for Closure
- Recon Roads - To Remain Open
- Recon Roads - Proposed for Closure
- ... Calder Tie Road

- 1/2 Mile Eagle Disturbance Buffer
- 330' Eagle Nest Buffer
- Swan Wintering Areas
- VC Goose Areas
- ★ Stream Crossings
- Private Land



0 2 4



Miles

Legend:

- Star: Point of Interest
- Circle: Boundary
- Triangle: Boundary
- Square: Boundary
- Dashed Line: Boundary
- Shaded Area: Specific Region

- Existing Roads - Currently Open
- Existing Roads - Proposed for Closure
- +++** Existing Roads - Currently Closed
- Proposed Roads - To Remain Open
- Proposed Roads - Proposed for Closure
- -** Recon Roads - To Remain Open
- - -** Recon Roads - Proposed for Closure
- • •** Calder Tie Road

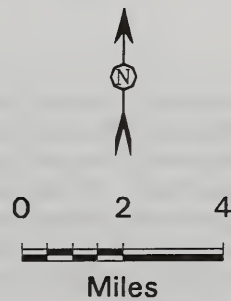
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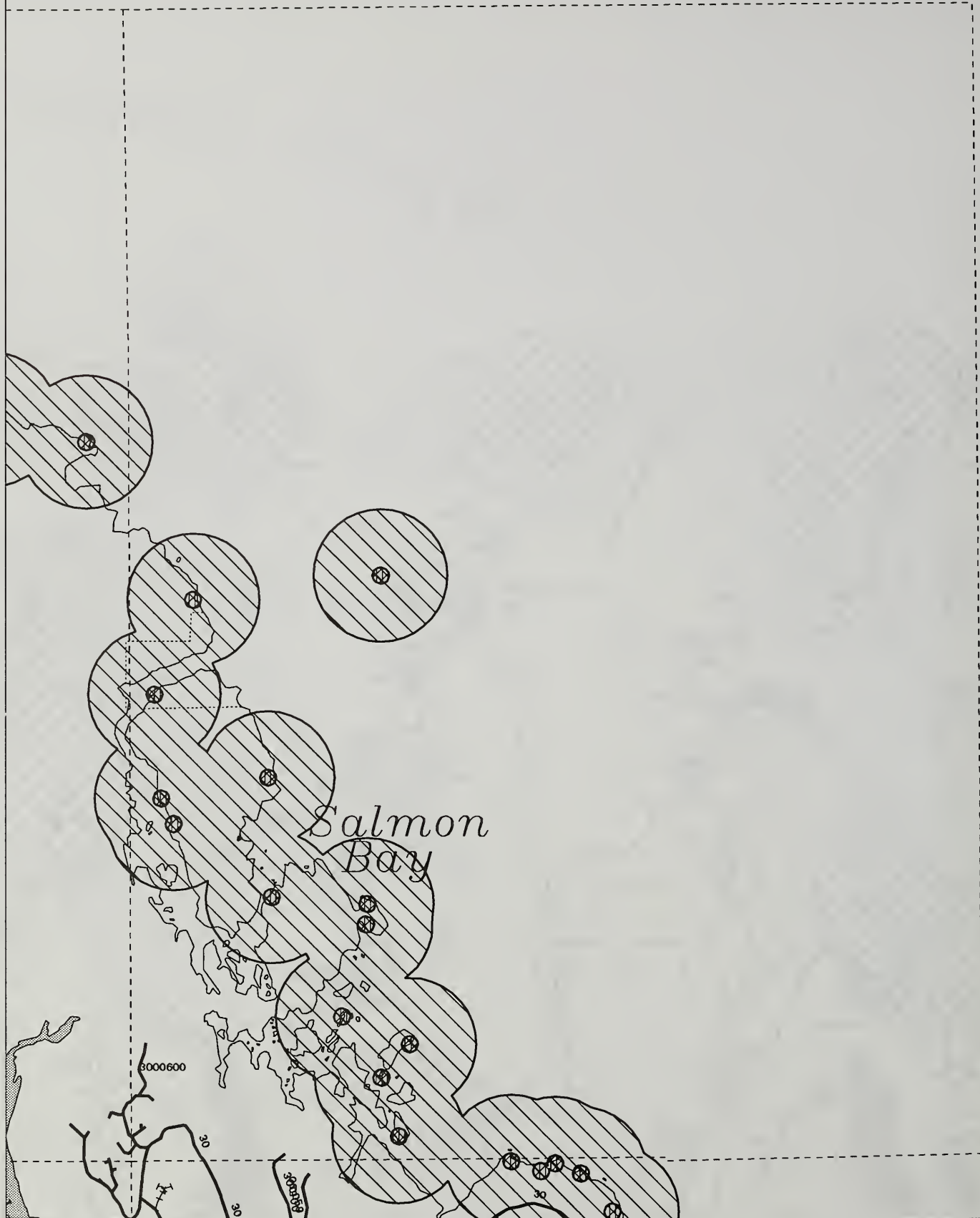


Quad B4SW

- Existing Roads - Currently Open
- - - Existing Roads - Proposed for Closure
- + + + Existing Roads - Currently Closed
- Proposed Roads - To Remain Open
- - - Proposed Roads - Proposed for Closure
- Recon Roads - To Remain Open
- - - Recon Roads - Proposed for Closure
- ... Calder Tie Road





- 330' Eagle Nest Buffer
- Swan Wintering Areas
- VC Goose Areas
- ★ Stream Crossings
- - - Private Land

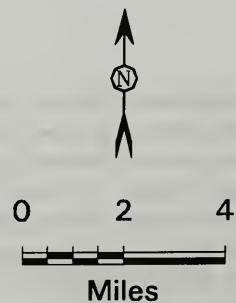


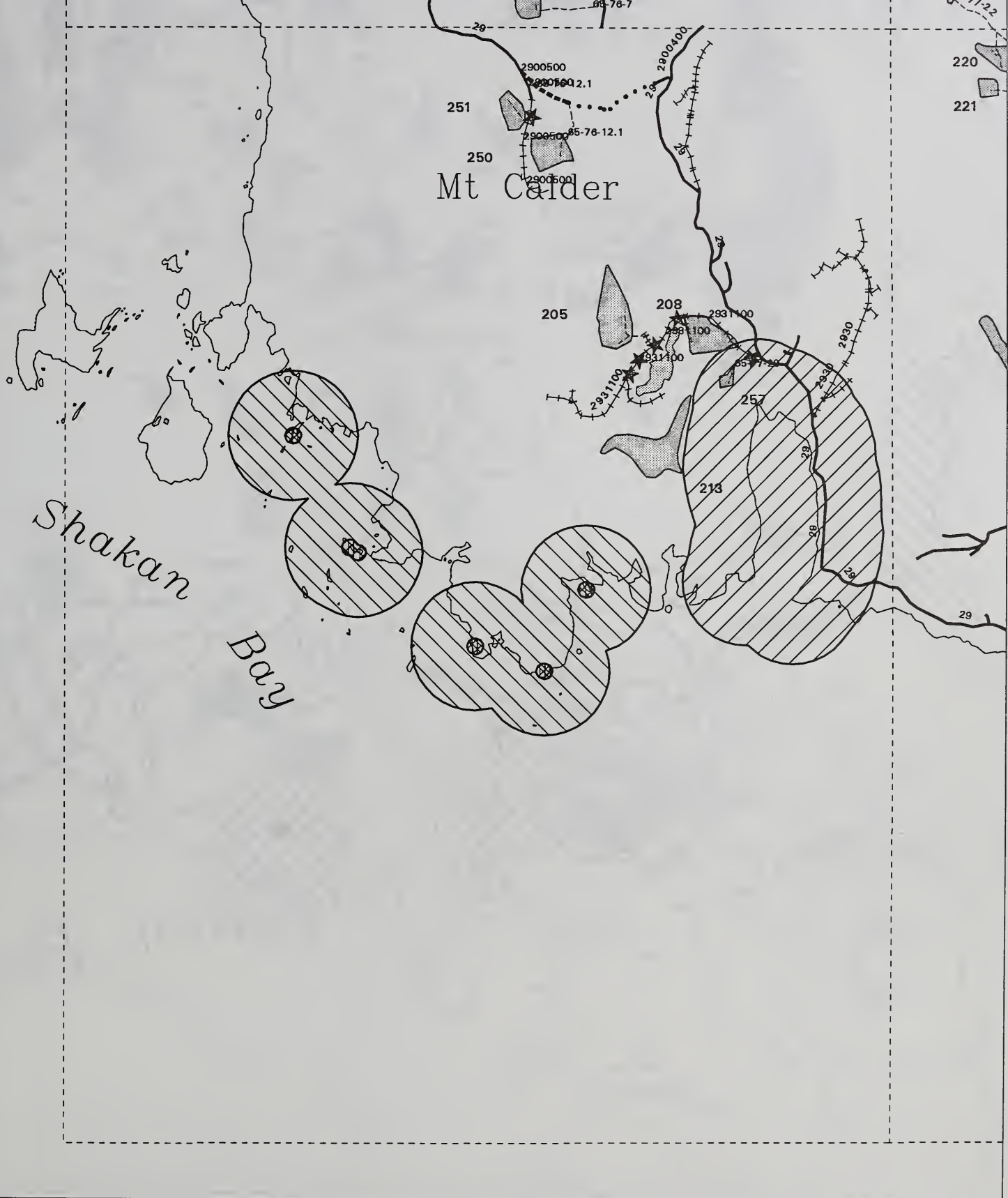


Quad B4SE

- Existing Roads - Currently Open
- Existing Roads - Proposed for Closure
- ++ Existing Roads - Currently Closed
- Proposed Roads - To Remain Open
- Proposed Roads - Proposed for Closure
- Recon Roads - To Remain Open
- Recon Roads - Proposed for Closure
- ... Calder Tie Road

-  1/2 Mile Eagle Disturbance Buffer
-  330' Eagle Nest Buffer
-  Swan Wintering Areas
-  VC Goose Areas
- ★ Stream Crossings
- Private Land

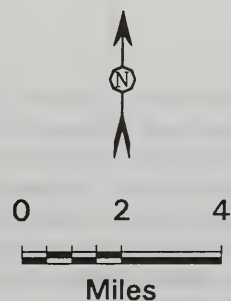


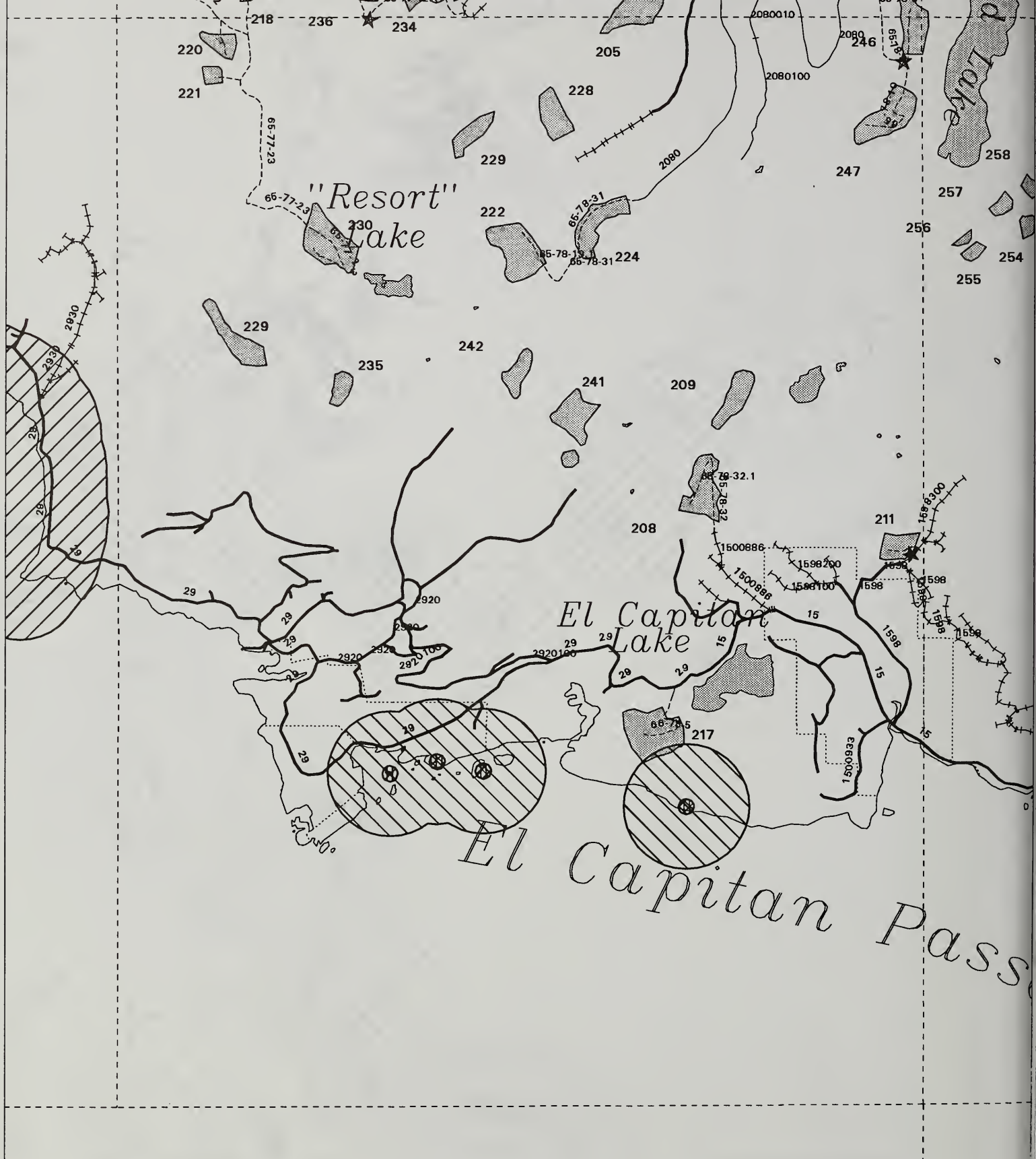


Quad A5NW

- Existing Roads - Currently Open
- - - Existing Roads - Proposed for Closure
- +++ Existing Roads - Currently Closed
- Proposed Roads - To Remain Open
- - - Proposed Roads - Proposed for Closure
- - - Recon Roads - To Remain Open
- - - Recon Roads - Proposed for Closure
- ... Calder Tie Road

- 1/2 Mile Eagle Disturbance Buffer
- 330' Eagle Nest Buffer
- Swan Wintering Areas
- VC Goose Areas
- ★ Stream Crossings
- Private Land

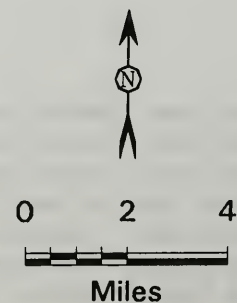




Quad A5NE







- Existing Roads - Currently Open
- - - Existing Roads - Proposed for Closure
- +++ Existing Roads - Currently Closed
- Proposed Roads - To Remain Open
- - - Proposed Roads - Proposed for Closure
- Recon Roads - To Remain Open
- - - Recon Roads - Proposed for Closure
- ... Calder Tie Road

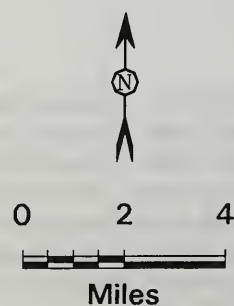
- 1/2 Mile Eagle Disturbance Buffer
- 330' Eagle Nest Buffer
- Swan Wintering Areas
- VC Goose Areas
- ★ Stream Crossings
- Private Land

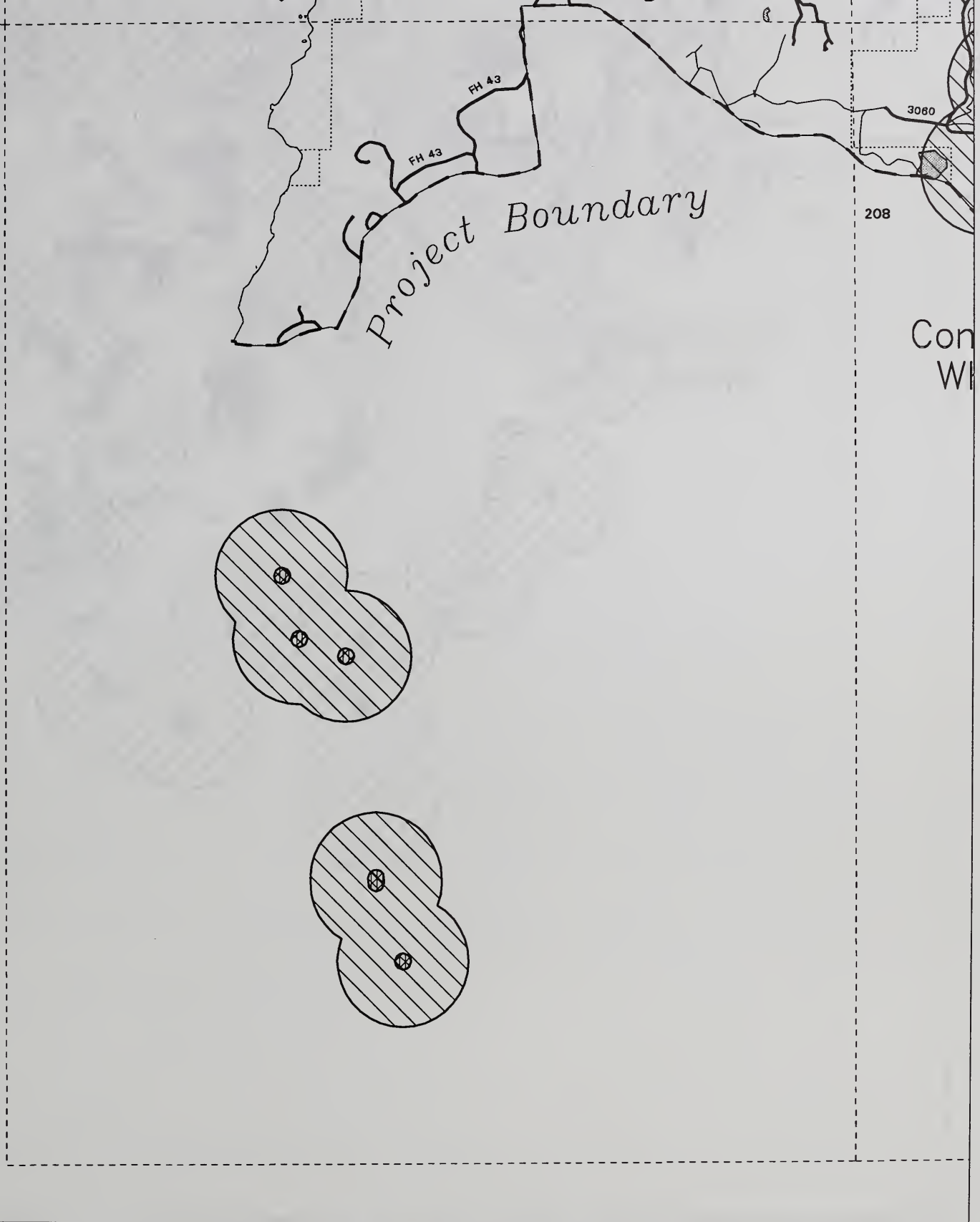


Quad A4NE

- Existing Roads - Currently Open
- Existing Roads - Proposed for Closure
- +++ Existing Roads - Currently Closed
- Proposed Roads - To Remain Open
- Proposed Roads - Proposed for Closure
- - Recon Roads - To Remain Open
- - Recon Roads - Proposed for Closure
- ... Calder Tie Road





-  Calder Tie Road
-  330' Eagle Nest Buffer
-  Swan Wintering Areas
-  VC Goose Areas
-  Stream Crossings
-  Private Land

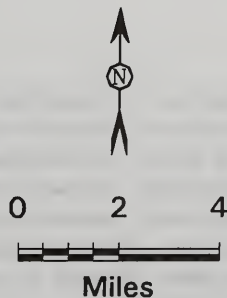


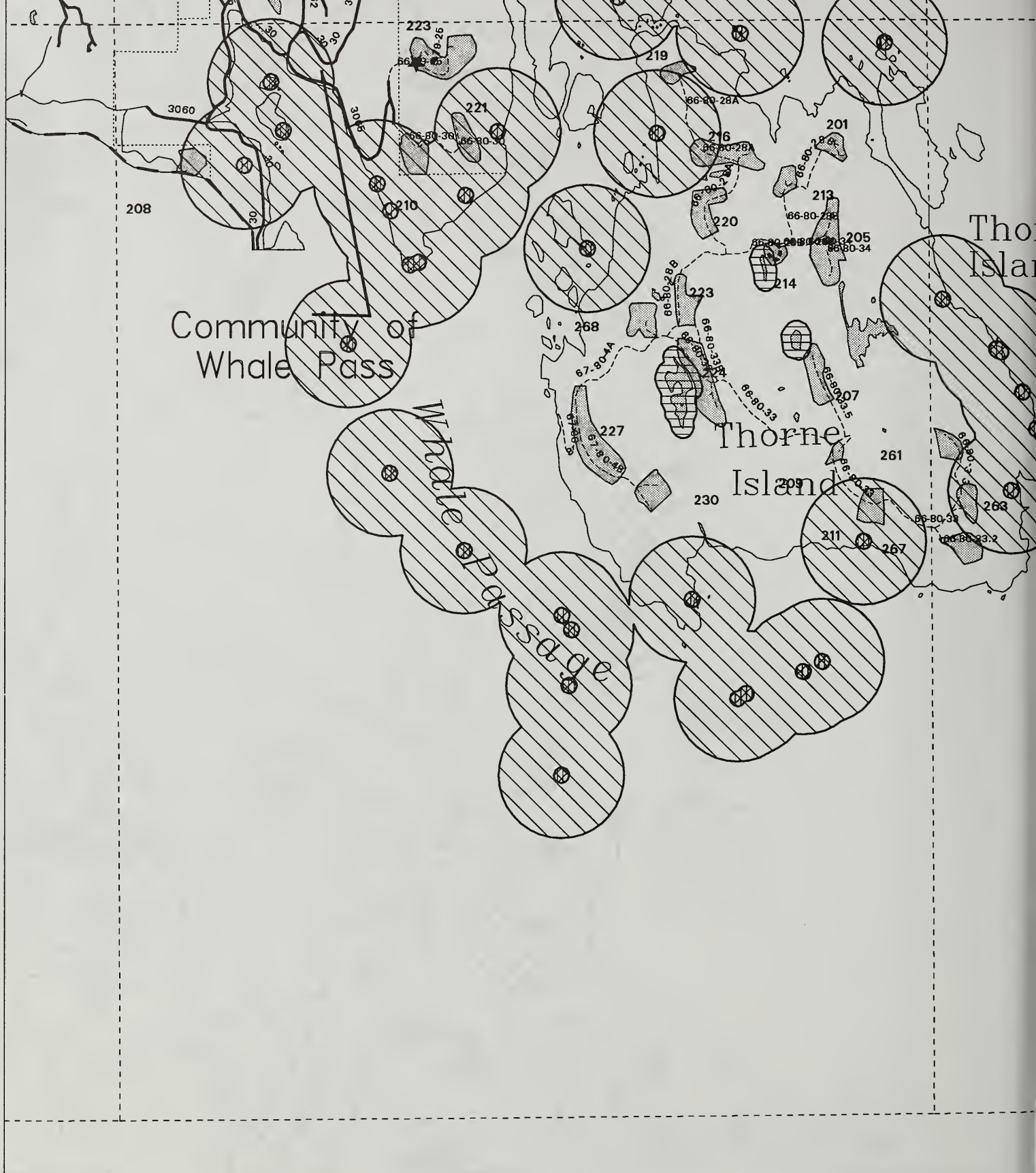


Quad A4SW

- Existing Roads - Currently Open
- - - Existing Roads - Proposed for Closure
- + + Existing Roads - Currently Closed
- • • Proposed Roads - To Remain Open
- - - Proposed Roads - Proposed for Closure
- - Recon Roads - To Remain Open
- - Recon Roads - Proposed for Closure
- • • Calder Tie Road

-  1/2 Mile Eagle Disturbance Buffer
-  330' Eagle Nest Buffer
-  Swan Wintering Areas
-  VC Goose Areas
- ★ Stream Crossings
- Private Land

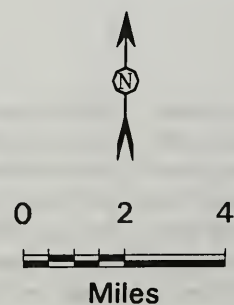


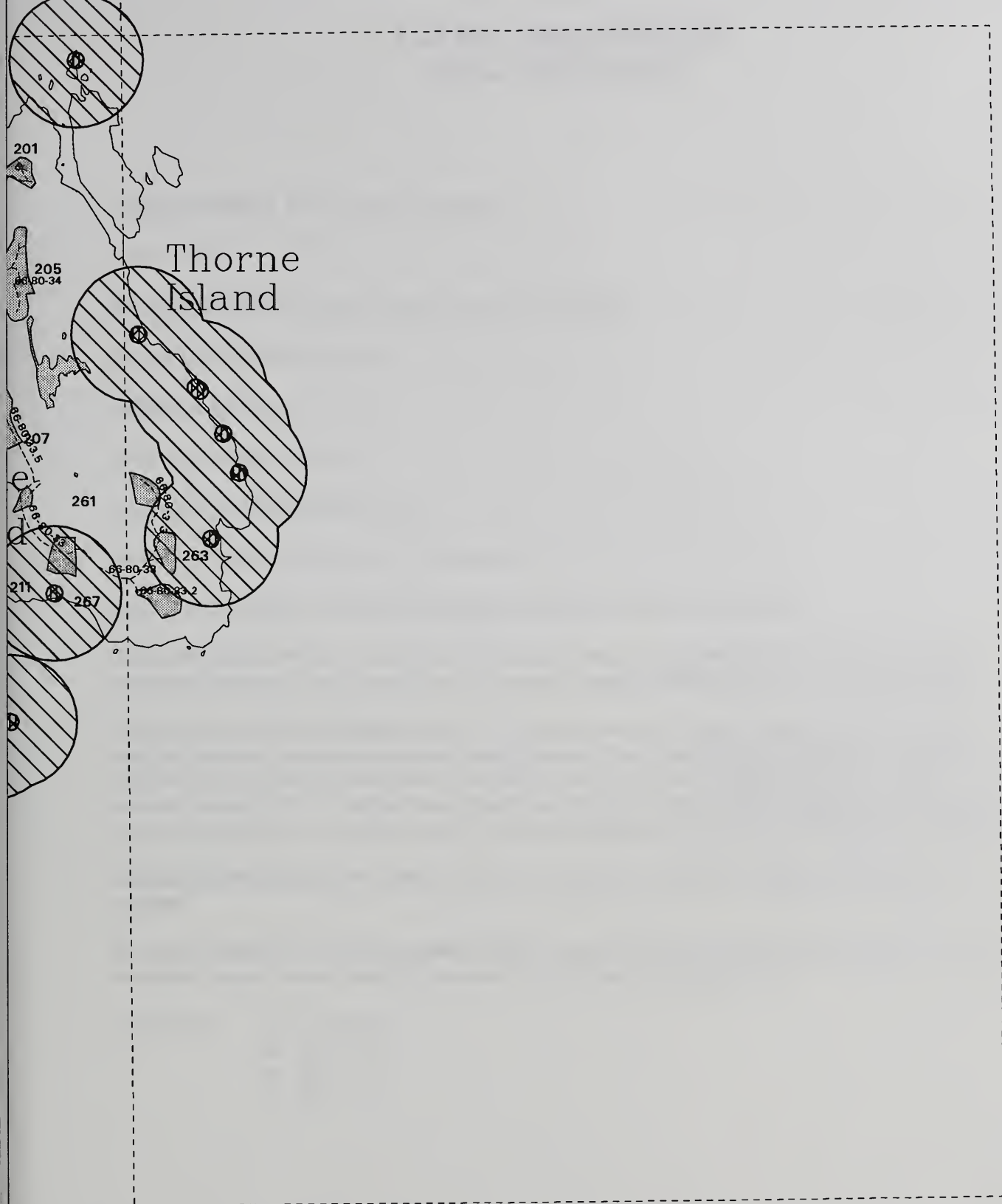


Quad A4SE

- Existing Roads - Currently Open
- - - Existing Roads - Proposed for Closure
- +++ Existing Roads - Currently Closed
- Proposed Roads - To Remain Open
- - - Existing Roads - Proposed for Closure
- - - Recon Roads - To Remain Open
- - - Recon Roads - Proposed for Closure
- ... Calder Tie Road





- 1/2 Mile Eagle Disturbance Buffer
- 330' Eagle Nest Buffer
- Swan Wintering Areas
- VC Goose Areas
- ★ Stream Crossings
- Private Land

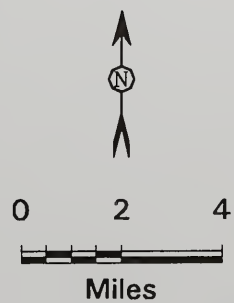




Quad A3SW

- Existing Roads - Currently Open
- - - Existing Roads - Proposed for Closure
- +++ Existing Roads - Currently Closed
- Proposed Roads - To Remain Open
- - - Proposed Roads - Proposed for Closure
- - - Recon Roads - To Remain Open
- - - Recon Roads - Proposed for Closure
- ... Calder Tie Road

-  1/2 Mile Eagle Disturbance Buffer
-  330' Eagle Nest Buffer
-  Swan Wintering Areas
-  VC Goose Areas
- ★ Stream Crossings
- Private Land



Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-75-24 and A, B, and C

VCU: 527

GIS LENGTH: Local = 0.63 miles; Temporary = 0.15 miles

ROAD CLASS: 64-75-24 Local

SERVICE LEVEL: C

MAINTENANCE LEVEL: 2

ACCESS STRATEGY: Encourage

ROAD CLASS: 64-75-24A, B & C Temporary¹

UNITS ACCESSED: 527-229 and Helicopter Landing for 527-227 and 527-228

STREAM CROSSINGS: 2 small Class III stream crossings. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: 0.6 miles of new road construction to access unit 527-229, may be affected by timing restrictions on blasting within 1/2 mile of a bald eagle nest. No blasting may occur within this radius between March 1 and May 31, and if the nest is occupied, the restriction is extended to August 31. In addition, the heliports and helicopter logging flight corridors for unit 527-227 must maintain at least a 1/4 mile distance from the nest during this time period. Mitigation measure W4.

OTHER RESOURCE CONCERNS: Karst type topography, rocky area but blasting should not be required.

FUTURE TIMBER ACCESS POSSIBILITIES: Road accesses timber south of unit 527-229, could be extended to access timber to the NE, and access future helicopter logging to NW.

Road Nodes: 201 - 203-205
 A) 202 - 206
 B) 203 - 207
 C) 203 - 208

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-76-08, 08.1, and 08.1A

VCU: 527

GIS LENGTH: Combined = 0.65 miles

ROAD CLASS: Temporary¹

UNITS ACCESSED: 527-206

STREAM CROSSINGS: Reconstructed segment of Road spur off of 2086 will require one Class III crossing that will receive timing restrictions due to proximity to Class I. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11. For protection of fish and fisheries habitat, implement timing restrictions on instream road construction activities, BMP's 14.6, 14.10, 14.14, 14.16, 14.17.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Steep cross slopes at STA R4+25 to R7+40 Road 64-76-08 15% favorable grade STA R3+40 to R8+10 and R11+50 Road 64-76-08.1 15% favorable grade STA 6+50 to 7+50 Road 64-76-08.1A.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 703 - 740
 740 - 742
 741 - 743 - 745 - 746
 745 - 747
 743 - 744

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-76-09.1, 64-76-09.2, and 09.2A

VCU: 529

GIS LENGTH: Combined = 0.57 miles

ROAD CLASS: Temporary¹

UNITS ACCESSED: 529-270

STREAM CROSSINGS: None

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: None

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 906 - 907
 905 - 908 - 909
 908 - 910

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-76-10

VCU: 529

GIS LENGTH: 0.18 miles

ROAD CLASS: Temporary¹

UNITS ACCESSED: 529-284

STREAM CROSSINGS: None

WILDLIFE TIMING RESTRICTIONS: Trumpeter swans have been observed wintering at Alder Creek. Timing restrictions on human activities would be implemented within 1/2 mile of areas receiving use by swans. Mitigation measure W7.

OTHER RESOURCE CONCERNS: Small amount of muskeg crossing and marsh crossing. Location minimizes muskeg crossing.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 1101 - 1110

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-76-10.1

VCU: 529

GIS LENGTH: 0.36 miles

ROAD CLASS: Temporary¹

UNITS ACCESSED: 529-285

STREAM CROSSINGS: One Class I stream crossing required. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11. For protection of fish and fisheries habitat, implement timing restrictions on instream road construction activities, BMP's 14.6, 14.10, 14.14, 14.16, 14.17.

WILDLIFE TIMING RESTRICTIONS: Trumpeter swans have been observed wintering at Alder Creek. Timing restrictions on human activities would be implemented within 1/2 mile of areas receiving use by swans. Mitigation measure W7.

OTHER RESOURCE CONCERNS: Crosses Class I stream with 10' fill and large culvert. Design drainage such that sediment cannot enter stream from road. Crossing is perpendicular to stream channel. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 10 - 1001-1002

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-76-10.3

VCU: 529

GIS LENGTH: 1.03 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

UNITS ACCESSED: 529-286

STREAM CROSSINGS: None

WILDLIFE TIMING RESTRICTIONS: 0.9 miles of new road construction to access units 529-286, may be affected by timing restrictions on blasting within 1/2 mile of a bald eagle nest. 0.3 of these miles are outside of the 1/2 mile buffer, but dependent on prior construction within the buffer. No blasting may occur within this radius between March 1 and May 31, and if the nest is occupied, the restriction is extended to August 31. Mitigation measure W4.

Trumpeter swans have been observed wintering at Alder Creek. Timing restrictions on human activities would be implemented within 1/2 mile of areas receiving use by swans. Mitigation measure W7.

OTHER RESOURCE CONCERNS: No stream crossings. No blasting noted or expected. Road designed for swing yarding from multiple locations from the road trying to maintain 1000' external yarding distances for each setting.

FUTURE TIMBER ACCESS POSSIBILITIES: Several more settings accessed from road.

Road Nodes: 902 - 921-923

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-76-11

VCU: 529

GIS LENGTH: 0.23 miles

ROAD CLASS: Temporary¹

UNITS ACCESSED: 529-259

STREAM CROSSINGS: One stream crossing requiring a 15 foot fill.

WILDLIFE TIMING RESTRICTIONS: Trumpeter swans have been observed wintering at Alder Creek. Timing restrictions on human activities would be implemented within 1/2 mile of areas receiving use by swans. Mitigation measure W7.

OTHER RESOURCE CONCERNS: Location crosses 100 feet of muskeg.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 11 - 1111

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-76-11.1

VCU: 529

GIS LENGTH: 0.14 miles

ROAD CLASS: Temporary¹

UNITS ACCESSED: 529-257

STREAM CROSSINGS: None after relocating the road 300 feet to the west for the first 2/3 of road.

WILDLIFE TIMING RESTRICTIONS: Trumpeter swans have been observed wintering at Alder Creek. Timing restrictions on human activities would be implemented within 1/2 mile of areas receiving use by swans. Mitigation measure W7.

OTHER RESOURCE CONCERNS: Road location flagged crosses a small Class I stream twice. The beginning of the road should be relocated about 300 feet to the west to avoid crossing this stream. Design such that sediment cannot enter stream.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 12 - 1201

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-76-12

VCU: 529, 530

GIS LENGTH: 0.61 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

UNITS ACCESSED: 530-241

STREAM CROSSINGS: One small Class III stream crossing requiring small CMP and minimal road fill to cross. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: 0.7 miles of new road construction to access unit 530-241, may be affected by timing restrictions on blasting within 1/2 mile of a bald eagle nest. No blasting may occur within this radius between March 1 and May 31, and if the nest is occupied, the restriction is extended to August 31. Mitigation measure W4.

OTHER RESOURCE CONCERNS: The first 1,500 feet of the road crosses karst type topography. 200 feet of the road was located in the bottom of a solution channel. Other routes were less desirable

FUTURE TIMBER ACCESS POSSIBILITIES: The road is located through timber from the beginning to the unit 530-241 south boundary.

Road Nodes: 1401 - 1404
 1403 - 1405

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-76-14

VCU: 529

GIS LENGTH: 0.55 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

UNITS ACCESSED: 529-202

STREAM CROSSINGS: One Class III requiring little fill and only a small CMP. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: Trumpeter swans have been observed wintering at Alder Creek. Timing restrictions on human activities would be implemented within 1/2 mile of areas receiving use by swans. Mitigation measure W7.

OTHER RESOURCE CONCERNS: Road crosses one Class III stream.

FUTURE TIMBER ACCESS POSSIBILITIES: Could be extended to access patch of timber to the SE of unit 529-202.

Road Nodes: 1103 - 1130-1133
 1131 - 1134
 1130 - 1135

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-76-14.1, 14A, and 14B

VCU: 529

GIS LENGTH: Local = 0.37 miles; Temporary = 0.49 miles

ROAD CLASS: 64-76-14A & B Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ROAD CLASS: 64-76-14.1 Temporary¹

UNITS ACCESSED: 529-256

STREAM CROSSINGS: One Class III stream which drains a muskeg, small CMP. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: Trumpeter swans have been observed wintering at Alder Creek. Timing restrictions on human activities would be implemented within 1/2 mile of areas receiving use by swans. Mitigation measure W7.

OTHER RESOURCE CONCERNS: Road location crosses some muskeg. No other concerns.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 1102 - 1120-1121

1131 - 1134

1130 - 1135

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-76-17 and 17.1

VCU: 527

GIS LENGTH: Combined = 1.34 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

UNITS ACCESSED: 527-226

STREAM CROSSINGS: 3 stream crossings: 2 Class III stream with small CMP and one Class II stream requiring ± 36 " CMP with 15 feet fill to cross. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: 1,000 feet of construction through 45 - 90 percent sideslopes requiring rock blasting and endhauling. There are three 60' radius switchback curves. Crosses a Class II stream with a 100' TTRA buffer.

FUTURE TIMBER ACCESS POSSIBILITIES: Goes through some timber between existing clearcut unit and the Class II stream crossing. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

Road Nodes: 706 - 730 - 731 - 733
 731 - 732

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-76-22

VCU: 529

GIS LENGTH: 0.24 miles

ROAD CLASS: Temporary¹

UNITS ACCESSED: 529-249

STREAM CROSSINGS: None

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Maximum 12 percent adverse hauling. Location avoids any stream crossings.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 605 - 620 - 621

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-76-23

VCU: 529

GIS LENGTH: 0.40 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

UNITS ACCESSED: 529-282

STREAM CROSSINGS: 6 Class III stream crossings requiring less than 48" CMP. One of those streams requires 15 feet of fill to cross. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Crosses 6 small streams, otherwise simple construction. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: Extendable to the east to future unit, located through timber to west of unit 529-282 also.

Road Nodes: 607 - 630 - 631

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-76-30 and 30A

VCU: 527

GIS LENGTH: Combined = 0.64 miles

ROAD CLASS: Temporary ¹

UNITS ACCESSED: 527-224

STREAM CROSSINGS: None

WILDLIFE TIMING RESTRICTIONS: 0.5 miles of new road construction to access unit 527-224, may be affected by timing restrictions on blasting within 1/2 mile of a bald eagle nest. No blasting may occur within this radius between March 1 and May 31, and if the nest is occupied, the restriction is extended to August 31. Mitigation measure W4.

OTHER RESOURCE CONCERNS: Karst type topography, some blasting required. Placed road to minimize site disturbance.

FUTURE TIMBER ACCESS POSSIBILITIES: Can be extended to access timber to the NW and E of unit 527-224.

Road Nodes: 301-306

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-77-17

VCU: 530

GIS LENGTH: 0.59 miles

ROAD CLASS: Temporary¹

UNITS ACCESSED: 530-200

STREAM CROSSINGS: One Class I stream crossing; apply timing restrictions. Seven Class III streams. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11. For protection of fish and fisheries habitat, implement timing restrictions on instream road construction activities, BMP's 14.6, 14.10, 14.14, 14.16, 14.17.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Large culvert or bridge at STA 13+90, this is a V-notch 20' deep and 30' wide and is a Class I stream. There are numerous muskeg crossings.

FUTURE TIMBER ACCESS POSSIBILITIES: There is a strip of timber SE of unit 530-253 between the creek and an existing clearcut that could be accessed from spur 64-77-17.1. There is timber west of unit 530-200 that could be accessed from road 64-77-17.

Road Nodes: 18 - 1801-1803
 1802 - 1804

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-77-18 and 18.3

VCU: 530

GIS LENGTH: Local = 0.99 miles; Temporary = 0.15 miles

ROAD CLASS: 64-77-18 Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ROAD CLASS: 64-77-18.3 Temporary¹

UNITS ACCESSED: 530-203

STREAM CROSSINGS: 64-77-18 crosses 3 Class III streams. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Road located to avoid Class I stream crossing.

FUTURE TIMBER ACCESS POSSIBILITIES: There is poorly stocked timber along road 64-77-18 and there is timber west of unit 530-203 that could be accessed from this road system.

Road Nodes: 15 - 1520-1523
1522 - 1525

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-77-19 and 19A

VCU: 530

GIS LENGTH: Local = 0.63 miles; Temporary = 0.13 miles

ROAD CLASS: 64-77-19 Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ROAD CLASS: 64-77-19A Temporary¹

UNITS ACCESSED: 530-240

STREAM CROSSINGS: One Class I and one Class III streams are crossed. The CMP across the Class I stream requires fish passage to be possible and seasonal constraints on placement. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11. For protection of fish and fisheries habitat, implement timing restrictions on instream road construction activities, BMP's 14.6, 14.10, 14.14, 14.16, 14.17.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Crosses muskeg with deep, soft soils. Crosses a Class I stream with 100' TTRA buffer in the area of a beaver dam. Crossing is perpendicular to stream channel. Needs proper drainage to prevent sediment from entering stream.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 16 - 1601-1603
1602 - 1604

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-77-22

VCU: 529

GIS LENGTH: 0.32 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

UNITS ACCESSED: 529-223

STREAM CROSSINGS: 4 Class III live streams and one dry stream bed is crossed. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: V-notch crossing requiring a >48" CMP and a 8' roadfill over a 25% channel is of low concern. 15 percent road grade over V-notch will require good road drainage above V-notch so that sediment from road does not enter stream.

FUTURE TIMBER ACCESS POSSIBILITIES: Accesses timber to north of unit 529-223.

Road Nodes: 1106 -1161-1162

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-77-23 and 23.2

VCU: 532

GIS LENGTH: Local = 1.60 miles; Temporary = 0.36 miles

ROAD CLASS: 64-77-23 Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ROAD CLASS: 64-77-23.2 Temporary¹

UNITS ACCESSED: 532-228 and 532-229

STREAM CROSSINGS: There are 5 stream crossings, one is a Class IIA stream and one was dry. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11. For protection of fish and fisheries habitat, implement timing restrictions on instream road construction activities, BMP's 14.6, 14.10, 14.14, 14.16, 14.17.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: 64-77-23: There is one Class IIA stream crossing, no other concerns noted. 64-77-23.2: There are small sink holes along the route that will require investigation.

FUTURE TIMBER ACCESS POSSIBILITIES: The road system passes through timber its entire route.

Road Nodes: 2001 - 2005
 2004 - 2006

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-77-29 and 29.1 spur

VCU: 530

GIS LENGTH: Local = 1.70 miles; Temporary = 0.05 miles

ROAD CLASS: 64-77-29 Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ROAD CLASS: 64-77-29.1 Temporary¹

UNITS ACCESSED: 530-226, 228, and 230

STREAM CROSSINGS: 12 Class III stream crossings. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Road location crosses 12 Class III streams which are tributaries to Buster Creek. Road drainage needs to be properly designed to prevent sediment off road from entering streams. Crosses high and very high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: Will access remaining timber along bottom 1/2 of ridge above road.

Road Nodes: 1505 - 1551-1556
1552 - 1557

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-77-30

VCU: 530

GIS LENGTH: 1.28 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE: 1

UNITS ACCESSED: 530-226 and 530-228

STREAM CROSSINGS: 12 Class III stream crossings of which 4 require greater than a 8 foot road fill to cross. None require >48" culverts. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Crosses timbered muskeg for the first 4700 feet. 100 feet of rock blasting required. One stream crossing requires a 18 foot road fill to cross. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: Accesses timber between units 530-226 and 228 and could be extended to access a setting south of 530-228.

Road Nodes: 1504 - 1541-1545

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-77-34

VCU: 530, 533

GIS LENGTH: 1.89 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

UNITS ACCESSED: 533-201

STREAM CROSSINGS: 12 small Class III stream crossing, nothing difficult. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Expensive road construction on segments of road requiring rock blasting for a total of 600 feet. another 1800 feet of construction on slopes over 55 percent requiring end-hauling. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: 30-40 MMBF timber in Little Creek drainage and upper west Big Creek drainage. Several units.

Road Nodes: 1902 - 1904

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 64-78-29, 29.1, 29.2, & 29.3

VCU: 532

GIS LENGTH: Local = 2.13 miles; Temporary = 0.82 miles

ROAD CLASS: 64-78-29 Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ROAD CLASS: 29.1, 29.2, & 29.3 Temporary¹

UNITS ACCESSED: 532-219, 532-220, 532-221, 532-223, 532-231

STREAM CROSSINGS: 19 Class III and 1 Class IIa stream crossings (64-78-29); and on 64-78-29.3 accessing 532-221, road crosses a Class I stream (SW). For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11. For protection of fish and fisheries habitat, implement timing restrictions on instream road construction activities, BMP's 14.6, 14.10, 14.14, 14.16, 14.17.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: The only rock sources noted were at the beginning and near the end. The road passes near and across several muskeg areas. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: There are several units that can be accessed from this road system. The road passes through some and others can be reached by extending both the main and side spurs. This timber on this area is poorly stocked with muskeg areas.

Road Nodes: 2401 - 2485-2493
 2485 - 2494
 2489 - 2495-2496
 2491 - 2497

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-76-07

VCU: 528

GIS LENGTH: 0.63 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 528-280

STREAM CROSSINGS: 8 stream crossings, all Class III, one requires large CMP. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCES CONCERNS: Crosses timbered muskeg for 1870 feet. Cross 6 V-notches requiring over 10 feet of fill, but simple crossings. Flagged road needs extended 300 feet to N for a landing. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: Extendable to south to access large quantity of timber.

Road Nodes: 505 - 509 - 510

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-76-13

VCU: 528

GIS LENGTH: 0.25 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 528-251

STREAM CROSSINGS: 1 Class IIB crossing at reconstruction, 2 Class III crossings. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS:

OTHER RESOURCE CONCERNS: This road should be easy to construct. The road was located at the bottom of the unit requiring downhill logging due to the steep sideslopes at the top of the unit. There is a switchback at the beginning but construction should be simple. A bridge & culvert replacement will be required on the existing Road. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: This road can be extended to the NW to pick up several more units.

ROAD NODES: 402 - 404

**Lab Bay Timber Sale EIS
Phase I Road Cards**

ROAD NUMBER: 65-76-32

VCU: 528

GIS LENGTH: 0.13 miles

ROAD CLASS: Temporary¹

UNITS ACCESSED: 528-204

STREAM CROSSINGS: No stream crossings.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: No concerns.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 503 - 506

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-77-06

VCU: 528

GIS LENGTH: 0.31 miles

ROAD CLASS: Temporary¹

UNITS ACCESSED: 528-213

STREAM CROSSINGS: 4 dry stream crossings, one requires large CMP. 2 require full bench construction to cross.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Crosses sideslopes in excess of 55 percent 850 feet. Expensive construction requiring blasting along 1300 feet.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 504 - 507 - 508

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-77-10

VCU: 529

GIS LENGTH: 1.90 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 529-212, 214, 215, and 218

STREAM CROSSINGS: 20 perennial stream crossings of which 8 crossings require >48" CMP's. One Class I crossing will have timing restrictions applied. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11. For protection of fish and fisheries habitat, implement timing restrictions on instream road construction activities, BMP's 14.6, 14.10, 14.14, 14.16, 14.17.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Several V-notch crossings. Crosses 500' of muskeg and skirts along the edge of muskeg for several more feet. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: Several units.

Road Nodes: 7513 - 7520-7525

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-77-10.1

VCU: 529

GIS LENGTH: 0.50 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 529-214

STREAM CROSSINGS: 5 Class III streams crossed, no difficult crossing or large CMP required. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Road skirts along edge of timber/muskeg boundary. Has 1,000 feet of 12 percent adverse road grades. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: Road can be extended 1000 feet to access a setting to the North of unit 529-214.

Road Nodes: 7521 - 7526-7527

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-77-10.2

VCU: 529

GIS LENGTH: 0.32 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 529-215

STREAM CROSSINGS: 5 Class III stream crossings. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Over 1,000' sustained 15 percent favorable road grade. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: Could possibly be extended to the ridge top and cross over to access timber on SE side of ridge.

Road Nodes: 7522 - 7528-7529

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-77-12.1

VCU: 530

GIS LENGTH: 1.32 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 530-234 and 530-236

STREAM CROSSINGS: 15 Class III stream crossings and 1 Class IIA stream crossing requiring a 50' bridge. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11. For protection of fish and fisheries habitat, implement timing restrictions on instream road construction activities, BMP's 14.6, 14.10, 14.14, 14.16, 14.17.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Bridge placement over Class IIA stream on segment of road accessing 530-236 will have seasonal constraints for construction. Road is within a TTRA buffer parallel to stream for 400 feet. Road drainage needs to be designed so that road sediment will not enter streams. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: Possible to extend further up Buster Creek drainage.

Road Nodes: 1701 - 1706

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-77-19

VCU: 531.1

GIS LENGTH: 0.23 miles

ROAD CLASS: Temporary¹

UNITS ACCESSED: 531.1-205

STREAM CROSSINGS: No new construction across streams is required. Replacement of 2 bridges and one CMP across Class I streams required reconstruct 2931 road to reach Road 65-77-19. Timing restrictions will be applied. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11. For protection of fish and fisheries habitat, implement timing restrictions on instream road construction activities, BMP's 14.6, 14.10, 14.14, 14.16, 14.17.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Rd. 65-77-19 is located across 200' of swampy ground. Requires replacement of bridges over 2 Class I streams to reopen the 2931 road. Reconstruction of the 2931 road will also be required.

FUTURE TIMBER ACCESS POSSIBILITIES: None.

Road Nodes: 7607- 7607

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-77-20

VCU: 531.1

GIS LENGTH: 0.29 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 531.1-257

STREAM CROSSINGS: 2 Class III stream crossings, one of which requires a large CMP (>48"). For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11. Reconstruction of 2931 Road will require replacement of bridge over Class 1 stream. For protection of fish and fisheries habitat, implement timing restrictions on instream road construction activities, BMP's 14.6, 14.10, 14.14, 14.16, 14.17.

WILDLIFE TIMING RESTRICTIONS: Trumpeter swans have been observed wintering at Calder Bay. Timing restrictions on human activities would be implemented within 1/2 mile of areas receiving use by swans. Mitigation measure W7.

OTHER RESOURCE CONCERNS: Requires replacement of bridge over Class I stream on 2931 road. Road located within Calder Bay viewshed but all or most of road will be buffered by timber. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 7601 - 7610-7611

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-77-20.1

VCU: 531.1

GIS LENGTH: 0.12 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 531.1-208, helicopter landing for 531.1-213.

STREAM CROSSINGS: Class I crossing on 2931 road will have timing restrictions applied. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11. For protection of fish and fisheries habitat, implement timing restrictions on instream road construction activities, BMP's 14.6, 14.10, 14.14, 14.16, 14.17. Two additional Class I crossings to access unit 205, and two Class I crossings to potential helicopter landing. All on reconstructed roads; apply timing restrictions.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: The first 0.06 miles is road reconstruction of an existing spur. Requires replacement of bridge over Class I stream on 2931 road.

FUTURE TIMBER ACCESS POSSIBILITIES: Can be extended up the ridge to another setting.

Road Nodes: 7603 - 7631-7633

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-77-22 beginning from Road 65-77-23 STA 103+50

VCU: 529, 531.1

GIS LENGTH: 1.38 miles

ROAD CLASS: Collector

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 529-220 and 531.1-220

STREAM CROSSINGS: 7 stream crossings, one requiring a greater than 48" CMP. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Continuation of road 65-77-23 as a main haul route to Calder Bay LTF. Changes from flagged route in the intersection of 65-77-22 and 65-77-23 are suggested to eliminate the need for one bridge (see files). Road is located through muskeg for $\pm 1,000$ feet. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: Several settings will be left after this entry in the accessed area.

Road Nodes: 7511 - 7515

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-77-22.1 and spur 65-77-22.1A

VCU: 529, 531.1

GIS LENGTH: Local = 0.37 miles; Temporary = 0.13 miles

ROAD CLASS: 65-77-22.1 Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

ROAD CLASS: 65-77-22.1A - Temporary¹

UNITS ACCESSED: 531.1-220

STREAM CROSSINGS: None

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: 300 feet of rock blasting required. Road location crosses some muskeg. Spur takes off with a switchback curve with 50' radius. 100' rock blasting also required on spur. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 7514 - 7560-7561
 7560 - 7562

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-77-22.2

VCU: 531.1

GIS LENGTH: 0.20 miles

ROAD CLASS: Temporary¹

UNITS ACCESSED: 531.1-221

STREAM CROSSINGS: 2 large Class III streams. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Crosses 2 large streams each requiring large CMP.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 7512 - 7512.1

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-77-23 to STA 103+50

VCU: 531.1

GIS LENGTH: 2.25 miles

ROAD CLASS: Collector

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 531.1-230

STREAM CROSSINGS: 42 Class III perennial streams (4 large CMP >48"); 5 dry stream and V-notch channels. Apply timing restrictions to Class I crossing.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Crosses two short distances of karst topography with a very small cave opening located above road location at STA 2+65. There is 1200 feet of road located across slopes >55 percent. Only 250 feet of rock blasting noted. One change in the alignment is suggested for the intersection of Road 65-77-22 and 65-77-23 which is discussed in Road 65-77-22 Road Phase I card. There is one difficult V-notch crossing and 7 of no special concern. The road crosses muskeg for ± 1000 feet. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: Accesses the upper Calder Creek.

Road Nodes: 7511 - 7505

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-77-23.2

VCU: 531.1

GIS LENGTH: 0.09 miles

ROAD CLASS: Temporary¹

UNITS ACCESSED: 531.1-230 setting

STREAM CROSSINGS: One Class III stream crossing requiring a small CMP. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 7505 - 7505.1

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-78-10 (alternate location)

VCU: 533

GIS LENGTH: 1.32 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 533-246 and 533-247

STREAM CROSSINGS: Alternate alignment requires crossing of Class I stream. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11. For protection of fish and fisheries habitat, implement timing restrictions on instream road construction activities, BMP's 14.6, 14.10, 14.14, 14.16, 14.17.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: This location has not been field verified. The mapped location is an alternative route to access units 533-246 and 533-247 without building road across karst features. Road crosses a Class I stream that will require a large culvert or bridge. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: Accesses a setting north of 533-246, a unit between 533-246 and 533-247, and could be extended to the south through a saddle to access timber above Red Lake if desired.

Road Nodes: 2302 - 2309

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-78-14

VCU: 533

GIS LENGTH: 0.66 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 533-250

STREAM CROSSINGS: 12 Class III crossings. One Class I crossing (bridge replacement) on existing 2078 road. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11. For protection of fish and fisheries habitat, implement timing restrictions on instream road construction activities, BMP's 14.6, 14.10, 14.14, 14.16, 14.17.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Contours 300-400 feet above Class I stream while crossing 12 Class III streams. Road drainage design will be critical to prevent road sediment from entering streams. One Class I stream crossing on reconstructed road segment (2078 Rd). Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES:

NOTE: Road placement and alignment is good.

Road Nodes: 2501 - 2503

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-78-19.1

VCU: 533

GIS LENGTH: 0.52 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 533-222

STREAM CROSSINGS: 18 Class III streams requiring small CMP's. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Crosses 18 small Class III streams. Intersection with 65-78-31 can be designed to haul either toward Lab Bay LTF or Calder Bay LTF. Road crosses 200 feet of open muskeg, however muskeg is shallow to bedrock. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: None. road cannot be extended due to topography.

Road Nodes: 6903 - 6907-6909

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-78-24 & 24.4

VCU: 533, 534, 537.1

GIS LENGTH: Collector = 3.18 miles; Local = 0.27 miles

ROAD CLASS: 65-78-24 Collector

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

ROAD CLASS: 65-78-24.4 Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 6 cable logged unit + 6 helicopter units

STREAM CROSSINGS: 8 small Class III streams. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Road crosses only 450 feet of >55% side slopes of which only 250 feet requires rock blasting. Road grades are $\geq 15\%$ favorable for a total of 2800 feet with maximum grade of 18%. Several muskeg crossings. Crosses some high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: Several settings in between this entry will be accessed by this road.

NOTE: Alternate route replacing the need for this road between STA 36+60 and STA 92+70 would be to link the upper section of this road to '89-'94 road 1599100. This connection was flagged by F.S.

Road Nodes: 24 = 27 - 2701-2710
 24.4 = 2710-2713

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-78-24.2

VCU: 533

GIS LENGTH: 0.22 miles

ROAD CLASS: Temporary¹

UNITS ACCESSED: 533-249

STREAM CROSSINGS: None.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Easy road. Short spur to access landing for unit 533-249.

FUTURE TIMBER ACCESS POSSIBILITIES: None.

Road Nodes: 2702 - 2770

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-78-25

VCU: 537.1

GIS LENGTH: 0.44 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 537.1-208

STREAM CROSSINGS: 3 Class III stream crossings. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Crosses 850' of >55% side slopes up to 90%. Some end hauling and rock blasting required. Gives good access to 2 landings for future entry. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: Accesses 2 settings north of unit 537.1-208.

Road Nodes: 2703 - 2730-2731

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-78-31 (Marble Creek to Big Creek)

VCU: 531.1, 533

GIS LENGTH: 1.01 miles

ROAD CLASS: 65-78-31 Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 531.1-242 (helicopter accessed) and 533-222, 224

STREAM CROSSINGS: 21 perennial Class III streams crossed, only 2 of those required a large CMP. Also crosses 20 very small intermittent streams. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Connects 2080 road with the 2900100 road. 5000 feet of road is located through muskeg which is generally very shallow down to solid granite bedrock. The bedrock generally has 10 to 30 percent sideslopes so very little rock blasting will be required. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: Accesses upper Marble Creek and upper Big Creek drainages. Very little timber in upper Marble Creek.

Road Nodes: 2205 - 2206 - 6904

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-78-32 and 65-78-32.1

VCU: 536

GIS LENGTH: Combined = 1.00 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 536-208 and 536-209

STREAM CROSSINGS: 65-78-32 has 7 Class III stream crossings; 65-78-32.1 has 11 Class III stream crossings. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: There is a 50' radius switchback at the beginning of Road 65-78-32.1 that cuts 12' into wet soils. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 6201 - 6203
 6203 - 6206

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-79-05

VCU: 534, 534.1

GIS LENGTH: 4.75 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 6 units along Pine Creek; 534-225, 534-226, 534-228; 534.1-204, 534.1-211, 534.1-212

STREAM CROSSINGS: There are 2 Class I crossings, 1 requiring a bridge, and 2 Class IIA crossings; apply timing restrictions. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11. For protection of fish and fisheries habitat, implement timing restrictions on instream road construction activities, BMP's 14.6, 14.10, 14.14, 14.16, 14.17. There are 3 V-notches.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: 1200' with sideslopes >55%. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12. There are several muskegs on or near the locations. Relatively few quarry sites on northern ½ of project. The construction is generally light and stream crossings generally easy.

FUTURE TIMBER ACCESS POSSIBILITIES: Several future units along Pine Creek.

Road Nodes: 2404 - 2461-2475

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-79-05.2 & 05.2A

VCU: 534

GIS LENGTH: 0.66 miles

ROAD CLASS: Temporary¹

UNITS ACCESSED: 534-228

STREAM CROSSINGS: There are two small streams requiring small CMP on this location. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: The location is on stable soils of flat to gentle sideslope; grades area moderate; construction is light.

FUTURE TIMBER ACCESS POSSIBILITIES: None.

Road Nodes: 2460 - 2482

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-79-13, 13.1, 13.2, & 13.3

VCU: 535

GIS LENGTH: Local = 1.61 miles; Temporary = 0.29 miles

ROAD CLASS: 65-79-13 Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

ROAD CLASS: 65-79-13.1, 13.2, 13.3 Temporary¹

UNITS ACCESSED: 535-207, 208, & helicopter landing for 535-209

STREAM CROSSINGS: 22 Class II stream crossings all of which require only a small CMP.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Crosses a total of 2,700 feet of steep side slopes over 55%. Some expensive road construction. Long lengths of sustained favorable road grades over 12%, some as high as 18%. 750 feet of muskeg crossing.

FUTURE TIMBER ACCESS POSSIBILITIES: Accesses settings between units and could be spurred off to the west to access settings to the north of unit 535-207.

Road Nodes: 5701 - 5704
5702 - 5707
5703 - 5708
5704 - 5709

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-79-25

VCU: 535

GIS LENGTH: 0.72 mile

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 535-205

STREAM CROSSINGS: 14 small Class III stream crossings all of which only require small CMP's. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Crosses through ± 700 feet of muskeg before entering unit. Crosses ± 400 feet of over 55% side slopes. Most of road grade is adverse with a maximum of 10%. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 5603 - 5604 - 5605

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-80-19

VCU: 535, 539

GIS LENGTH: 0.58 mile

ROAD CLASS: Local

WILDLIFE TIMING RESTRICTIONS: None

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 539-206

STREAM CROSSINGS: There are 5 minor stream crossings requiring small CMP's. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: This location crosses and skirts some small muskeg areas and also has a short stretch of 13% favorable grade moderate slopes and easy construction area positive aspects.

FUTURE TIMBER ACCESS POSSIBILITIES: Possibly one more unit south.

Road Nodes: 5504 - 5507

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 65-80-31

VCU: 539

GIS LENGTH: 0.90 mile

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 539-220 & 539-221

OTHER RESOURCE CONCERNS: The Class IIa stream crossing at STA 6+03 and the road near this stream will require construction methods that minimize sedimentation into the stream. There are some signs of instability along this stream. Fish passage will be required. There is 500' of full bench and endhaul required. This area is rock and crosses 2 near vertical bluffs. This was the only route we could find to log the upper half of unit 539-221 which is where the best timber is.

STREAM CROSSINGS: One Class IIa stream crossing with timing restriction and 17 Class III stream crossings. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11. For protection of fish and fisheries habitat, implement timing restrictions on instream road construction activities, BMP's 14.6, 14.10, 14.14, 14.16, 14.17.

WILDLIFE TIMING RESTRICTIONS: Trumpeter swans have been observed wintering at Exchange Cove. Timing restrictions on human activities would be implemented within 1/2 mile of areas receiving use by swans. Mitigation measure W7.

FUTURE TIMBER ACCESS POSSIBILITIES: This road will access the unit between 539-220 and 539-221 and may be extended south but this would require crossing a large V-notch.

Road Nodes: 54 - 5401-5408

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 66-78-05

VCU: 536

GIS LENGTH: 0.73 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 536-217

STREAM CROSSINGS: There are 4 Class III stream crossings requiring CMP's.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: There is karst from STA 1+00R to 8+66R. 912' of full bench will be required. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: There is timber to the north and west of unit 536-217 that can be accessed from this road or from the 29 road.

Road Nodes: 63 - 6301-6302

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 66-78-34

VCU: 536

GIS LENGTH: 0.23 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 536-211

STREAM CROSSINGS: No major streams.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: There is timber to the west of unit 536-211 that will be best accessed from this road. Reconstructed segment of Road 1598-300 will require replacement of bridge over Class III stream. Apply timing restrictions.

Road Nodes: 2908 - 2909

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 66-79-15, 15.2 and 15.3

VCU: 538

GIS LENGTH: Combined = 0.59 miles

ROAD CLASS: Temporary¹

UNITS ACCESSED: 538-223

STREAM CROSSINGS: 5 small stream crossings. Reconstruction of spur road off of road 27 will require a temporary bridge over 108 Creek (Class I). Apply timing restriction. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11. For protection of fish and fisheries habitat, implement timing restrictions on instream road construction activities, BMP's 14.6, 14.10, 14.14, 14.16, 14.17.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: None.

FUTURE TIMBER ACCESS POSSIBILITIES: There is a unit to the south of unit 538-223 that can be accessed from this road system.

Road Nodes: 4402 - 4408

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 66-79-25 & 25.1

VCU: 538, 540

GIS LENGTH: Combined = 1.01 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

UNITS ACCESSED: 540-223

STREAM CROSSINGS: One Class I stream crossing; 2 Class III perennial stream crossings one of which will require a >48" CMP. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11. For protection of fish and fisheries habitat, implement timing restrictions on instream road construction activities, BMP's 14.6, 14.10, 14.14, 14.16, 14.17.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Road location requires about 500 feet of rock blasting of various degrees to construct. The remainder of the road is typical to simple construction.

FUTURE TIMBER ACCESS POSSIBILITIES: Road can be extended to the north from the E.O.P. to access future settings.

Road Nodes: 5004 - 5010-5013
 5010 - 5014-5015

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 66-79-35

VCU: 538

GIS LENGTH: 0.12 mile

ROAD CLASS: Temporary¹

UNITS ACCESSED: 538-208

STREAM CROSSINGS: There are two minor stream crossings requiring pipe. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Road grades are moderate to steep. There is a segment of full bench road on 60-80% slope.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 4603 - 4631

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 66-80-04 and 04.1, 04.2, 04.2-1

VCU: 540

GIS LENGTH: Local (combined) = 1.74 miles; Temporary = 0.04 miles

ROAD CLASS: 66-80-04, 04.1, 04.2 Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

ROAD CLASS: 66-80-04.2-1 Temporary¹

UNITS ACCESSED: 540-206 & 540-210

STREAM CROSSINGS: 9 Class III stream crossings. One Class I crossing and one Class IIb crossing before reaching unit 206; apply timing restrictions to both. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11. For protection of fish and fisheries habitat, implement timing restrictions on instream road construction activities, BMP's 14.6, 14.10, 14.14, 14.16, 14.17.

WILDLIFE TIMING RESTRICTIONS: 1.25 miles of new road construction to access units 540-206 & -210, may be affected by timing restrictions on blasting within 1/2 mile of a bald eagle nest. 0.4 of these miles are outside of the 1/2 mile buffer, but dependent on prior construction within the buffer. No blasting may occur within this radius between March 1 and May 31, and if the nest is occupied, the restriction is extended to August 31. Mitigation measure W4.

OTHER RESOURCE CONCERNS: No quarry sites were noted so lack of rock might be a problem. Some wet areas were noted but overall the soils were considered good. Crosses some high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: There is a unit between units 540-206 and 540-210 that this road passes through and spur 66-80-04.2 can be extended north to pick up more units.

Road Nodes: 5306 - 5340-5344
 5343 - 5350
 5341 - 5345-5348
 5347 - 5349

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 66-80-05

VCU: 539

GIS LENGTH: 1.32 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 539-222

STREAM CROSSINGS: One Class I crossing with timing restrictions; 17 Class III crossings. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11. For protection of fish and fisheries habitat, implement timing restrictions on instream road construction activities, BMP's 14.6, 14.10, 14.14, 14.16, 14.17.

WILDLIFE TIMING RESTRICTIONS: 0.25 miles of new road construction to access unit 539-222, may be affected by timing restrictions on blasting within 1/2 mile of a bald eagle nest. No blasting may occur within this radius between March 1 and May 31, and if the nest is occupied, the restriction is extended to August 31. Mitigation measure W4.

Trumpeter swans have been observed wintering at Exchange Cove. Timing restrictions on human activities would be implemented within 1/2 mile of areas receiving use by swans. Mitigation measure W7.

OTHER RESOURCE CONCERNS: Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: Unit 539-222 covers most of the available timber in this area but there may be some to the east that could be accessed from this road.

Road Nodes: 5304 - 5320-5321

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 66-80-07

VCU: 539, 540

GIS LENGTH: 0.51 mile

ROAD CLASS: Temporary¹

UNITS ACCESSED: 539-215

STREAM CROSSINGS: one Class III stream crossing. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Approximately 700' of this road is across soft ground that will require a deep base course of rock. The terrain is gentle with no other concerns noted.

FUTURE TIMBER ACCESS POSSIBILITIES: None.

Road Nodes: 5301 - 5310-5311

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 66-80-08

VCU: 539, 540

GIS LENGTH: 0.91 mile

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 540-224

STREAM CROSSINGS: 10 small Class III stream crossings all of which require only small CMPs. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Located on the east slope facing coastal waters. Side slopes are gentle to moderate. Several small stream crossings. Crosses some high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: Accesses settings between north boundary of unit 540-224 and F.S. Road 3070 P-Line.

Road Nodes: 5305 - 5360-5363

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 66-80-19

VCU: 540

GIS LENGTH: 0.48 mile

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 540-225

STREAM CROSSINGS: one Class III stream. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: There are several soft areas that may require lots of fill. Crosses some high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: There are units to the south that can be accessed from this road.

Road Nodes: 5102 - 5104

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 66-80-30

VCU: 538, 540

GIS LENGTH: 0.94 mile

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Eliminate

UNITS ACCESSED: 538-210 & 540-221

STREAM CROSSINGS: One Class III with a switchback crossing and one small perennial seep. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: 0.9 miles of new road construction to access unit 538-210 & - 221, may be affected by timing restrictions on blasting within 1/2 mile of a bald eagle nest. No blasting may occur within this radius between March 1 and May 31, and if the nest is occupied, the restriction is extended to August 31. Mitigation measure W4.

OTHER RESOURCE CONCERNS: There are several pitches of 12-15% favorable grade and a switchback in a draw. Rock construction on the first 25% of road. The rest is common excavation on moderate sideslopes. Crosses some high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 5005 - 5021-5024

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 66-80-11 and spur A

VCU: 551

GIS LENGTH: 0.13 mile

ROAD CLASS: Temporary¹

UNITS ACCESSED: 551-263

STREAM CROSSINGS: None.

WILDLIFE TIMING RESTRICTIONS: 0.1 miles of new road construction to access unit 551-263, may be affected by timing restrictions on blasting within 1/2 mile of a bald eagle nest. No blasting may occur within this radius between March 1 and May 31, and if the nest is occupied, the restriction is extended to August 31. Mitigation measure W4.

OTHER RESOURCE CONCERNS: There is a 50' radius curve on 66-80-11 but it would require blasting through rock to enlarge it.

FUTURE TIMBER ACCESS POSSIBILITIES: None.

Road Nodes: 8035 - 8070 : 8036 - 8071

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 66-80-28 seg "A" & 66-80-28.1

VCU: 551

GIS LENGTH: Local = 1.90 miles; Temporary = 0.13 mile

ROAD CLASS: 66-80-28 Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Discourage

ROAD CLASS: 66-80-28.1 Temporary¹

UNITS ACCESSED: 551-216, 551-219, 551-220

STREAM CROSSINGS: 15 class III stream crossings. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: 0.7 miles of new road construction to access unit 551-216, -219, & -220, may be affected by timing restrictions on blasting within 1/2 mile of a bald eagle nest. No blasting may occur within this radius between March 1 and May 31, and if the nest is occupied, the restriction is extended to August 31. Mitigation measure W4.

1.25 miles of road 66-80-28, accessing units 551-218, -219, -220 would be affected by timing restrictions on activities within 1/2-mile of a known wolf den. Timing restrictions would be implemented from February 1 to June 30, and would be lifted after April 30 if the den is determined to be unoccupied. Mitigation measure W8.

OTHER RESOURCE CONCERNS: The road comes within 100' of a small lake. The lake buffer could be increased by lengthening the road. There are 2 rock sources called but the rock did not appear to be very good quality. There are 2 soil movement areas that could not be avoided. Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: This road passes through timber its whole length but it is poorly stocked and poor quality.

Road Nodes: 8001 - 8006
8003 - 8007

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 66-80-28 Seg. B,& 28.2, 28.3, 28.4, 28.4A, 28.5

VCU: 551

GIS LENGTH: Local = 3.23 miles; Temporary = 0.39 mile

ROAD CLASS: 66-80-28 Seg B Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Discourage

ROAD CLASS: 66-80-28.2 & 28.3 & 28.4 & 28.4A & 28.5 Temporary¹

UNITS ACCESSED: 551-213 & 551-201

STREAM CROSSINGS: 18 class III streams; 2 class IIB streams. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: There are 2 Class IIB fish-bearing streams crossed, one of which is in a V-notch. Crosses some high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: The road passes through several units. There is no timber beyond this road system.

Road Nodes: 8001 - 8013
 8010 - 8014
 8011 - 8015
 8012 - 8018
 8017 - 8019

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 66-80-28.6

VCU: 551

GIS LENGTH: 0.24 mi

ROAD CLASS: Temporary¹

UNITS ACCESSED: 551-214

STREAM CROSSINGS: Two Class IIB crossings. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: None noted.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 8016 - 8021-8022

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 66-80-33

VCU: 551

GIS LENGTH: 3.83 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Discourage

UNITS ACCESSED: 551-224, 551-223, 551-207, 551-209, 551-211, 551-261, 551-263, 551-267

STREAM CROSSINGS: 13 class III streams; 3 class IIB streams. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: 2.0 miles of new road construction to access units 551-211, -261, -263 & -267, may be affected by timing restrictions on blasting within 1/2 mile of a bald eagle nest. 0.8 of these miles are outside of the 1/2 mile buffer, but dependent on prior construction within the buffer. No blasting may occur within this radius between March 1 and May 31, and if the nest is occupied, the restriction is extended to August 31. Mitigation measure W4.

OTHER RESOURCE CONCERNS: The V-notch and switchback are a concern and an alternate route was recommended but does not appear to be any better. Crosses some high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: This is a main road on Thorne Is. that will access many more units.

Road Nodes: 8008 - 8029-8038

**Lab Bay Timber Sale EIS
Phase I Road Cards**

ROAD NUMBER: 66-80-33A & 33A1

VCU: 551

GIS LENGTH: 0.25 mi

ROAD CLASS: Temporary¹

UNITS ACCESSED: 551-224

STREAM CROSSINGS: None

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Crosses some high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 8028 - 8039-8040

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 66-80-33B

VCU: 551

GIS LENGTH: 0.69 mile

ROAD CLASS: Temporary¹

UNITS ACCESSED: 551-223 & 551-224

STREAM CROSSINGS: None

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: The switchback on level ground at 0+00 may need to be moved east to facilitate joining Rd 66-80-33. Crosses some high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 8030 - 8042-8043

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 66-80-33.2

VCU: 551

GIS LENGTH: 0.27 mile

ROAD CLASS: Temporary¹

UNITS ACCESSED: 551-267

STREAM CROSSINGS: One class III stream. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: 0.25 miles of new road construction to access unit 551-267, may be affected by timing restrictions on blasting within 1/2 mile of a bald eagle nest. Although road 66-80-33.2 is not within the buffer, road 66-80-33, which must be constructed prior to this road, is within the 1/2 mile buffer. No blasting may occur within this radius between March 1 and May 31, and if the nest is occupied, the restriction is extended to August 31. Mitigation measure W4.

OTHER RESOURCE CONCERNS: Crosses high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 8034 - 8049

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 66-80-33.5 & 33.6

VCU: 551

GIS LENGTH: 1.05 miles

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Discourage

UNITS ACCESSED: 551-207 & 551-209

STREAM CROSSINGS: 21 class III streams. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Crosses some high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: Rd. 66-80-33.5 can be extended to the north to pick up another unit. It also passes through a unit to the south of unit 551-207. Rd. 66-80-33.6 could be extended to the SE but this area may be accessible from Rd 66-80-33

Road Nodes: 8031 - 8045-8047
 8045 - 8048

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 66-80-34 & 34A & 34B

VCU: 551

GIS LENGTH: 0.97 mile

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Discourage

UNITS ACCESSED: 551-205

STREAM CROSSINGS: 5 class III crossings. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: There is a slide area noted at sta. 6+10R (34A). 340' of full bench required, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: There is timber to the East that can be reached by extending 34A & 34B. There is timber to the south that can be reached by extending 66-80-34.

Road Nodes: 8009 - 8023-8024
 8023 - 8025-8026
 8025 - 8027

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 67-80-04A

VCU: 551

GIS LENGTH: 1.18 miles

ROAD CLASS : Collector

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Discourage

UNITS ACCESSED: Most of Thorne Island

STREAM CROSSINGS: V-notches @ 28+50, 28+90 & 60+65 require fills. There are 4 other small streams. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: There are about 5 areas where this location crosses muskeg. There are 3 "V" notch crossings, and one short section of unstable soils, implement BMP's 14.7, 14.8, 14.12. Generally easy construction and moderate sideslopes.

FUTURE TIMBER ACCESS POSSIBILITIES: All of Thorne Island except units 551-227, 551-230, 551-231 and whatever future units might abut these three.

Road Nodes: 8050 - 8055-8058

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 67-80-04B

VCU: 551

GIS LENGTH: 0.99 mile

ROAD CLASS: Local

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Discourage

UNITS ACCESSED: 551-227 & 551-230

STREAM CROSSINGS: Only 2 small drainages were noted on this location. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: This location has some muskeg and wet soil, but is generally easy construction on gentle sideslopes

FUTURE TIMBER ACCESS POSSIBILITIES: None

Road Nodes: 8050 - 8052

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 67-80-04.1

VCU: 551

GIS LENGTH: 0.19 mile

ROAD CLASS: Temporary¹ spur

UNITS ACCESSED: 551-268

STREAM CROSSINGS: None were noted.

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Favorable grades of 15% are found on 60% of this location. Some high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: Not likely due to buffers & scenic values.

Road Nodes: 8058 - 8060

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 67-80-04.3

VCU: 551

GIS LENGTH: 0.18 mile

ROAD CLASS: Temporary¹

UNITS ACCESSED: 551-230

STREAM CROSSINGS: None

WILDLIFE TIMING RESTRICTIONS: None

OTHER RESOURCE CONCERNS: Grade of 12 and 15% favorable are the only concern of this location

FUTURE TIMBER ACCESS POSSIBILITIES:

Road Nodes: 8052 - 8054

Lab Bay Timber Sale EIS

Phase I Road Cards

ROAD NUMBER: 67-80-08

VCU: 551

GIS LENGTH: 0.66 mile

ROAD CLASS: Collector

SERVICE LEVEL: D

MAINTENANCE LEVEL: 1

ACCESS STRATEGY: Discourage

UNITS ACCESSED: All on Thorne Island

OTHER RESOURCE CONCERNS: Wet, swampy soils requiring more than normal number of small CMP and one 60' radius switchback are found on this location. Greater than normal subgrade reinforcement may be required.

STREAM CROSSINGS: 14 stream crossings of minor flows. For protection of water quality, riparian areas, fish and fisheries habitat on all stream crossings, implement BMP's 12.6, 12.7, 13.16, 14.9, 14.11.

WILDLIFE TIMING RESTRICTIONS: Some areas of high MMI soils, implement BMP's 14.7, 14.8, 14.12.

FUTURE TIMBER ACCESS POSSIBILITIES: All of Thorne Island

Road Nodes: TILTF - 8050

Appendix I

Road Management Objectives

Road Number	VCU	Alternative					GIS* Length	Arterial	Road Class			Temp	Traffic Service Level				Road Maintenance		
		2	3	4	5				Collector	Local			A	B	C	D	1	2	3
64-75-24	527	1		1	1		0.63			0.63					0.63			0.63	
64-75-24A	527	1		1	1		0.06					0.06				0.06	0.06		
64-75-24B	527	1		1	1		0.04					0.04				0.04	0.04		
64-75-24C	527	1		1	1		0.05					0.05				0.05	0.05		
64-76-08	527	1			1		0.25					0.25				0.25	0.25		
64-76-08.1	527	1			1		0.11					0.11				0.11	0.11		
64-76-08.1A	527	1			1		0.29					0.29				0.29	0.29		
64-76-09.1	529	1	1				0.16					0.16				0.16	0.16		
64-76-09.2	529	1	1				0.35					0.35				0.35	0.35		
64-76-09.2A	529	1	1				0.06					0.06				0.06	0.06		
64-76-10	529	1	1	1			0.18					0.18				0.18	0.18		
64-76-10.1	529	1	1	1			0.36					0.36				0.36	0.36		
64-76-10.3	529	1			1		1.03			1.03						1.03	1.03		
64-76-11	529	1	1	1			0.23					0.23				0.23	0.23		
64-76-11.1	529	1	1	1			0.14					0.14				0.14	0.14		
64-76-12	529/530	1		1			0.61			0.61						0.61	0.61		
64-76-12.1	530	1		1			0.06			0.06						0.06	0.06		
64-76-14	529	1	1	1			0.55			0.55						0.55	0.55		
64-76-14A	529	1	1	1			0.19			0.19						0.19	0.19		
64-76-14B	529	1	1	1			0.18			0.18						0.18	0.18		
64-76-14.1	529	1	1	1			0.49					0.49				0.49	0.49		
64-76-17	527	1			1		1.23			1.23						1.23	1.23		
64-76-17.1	527	1			1		0.11			0.11						0.11	0.11		
64-76-22	529	1	1	1			0.24					0.24				0.24	0.24		
64-76-23	529	1	1	1			0.40			0.40						0.40	0.40		
64-76-25	529	1	1	1	1		2.03		2.03						2.03			2.03	
64-76-30	527	1		1	1		0.58					0.58				0.58	0.58		
64-76-30A	527	1		1	1		0.06					0.06				0.06	0.06		
64-77-17	530	1		1			0.59					0.59				0.59	0.59		
64-77-18	530	1		1			0.99			0.99						0.99	0.99		
64-77-18.3	530	1		1			0.15					0.15				0.15	0.15		
64-77-19	530	1		1			0.63			0.63						0.63	0.63		
64-77-19A	530	1		1			0.13					0.13				0.13	0.13		

Road Number	VCU	Alternative					GIS* Length	Arterial	Road Class		Temp	Traffic Service Level				Road Maintenance		
		2	3	4	5				Collector	Local		A	B	C	D	1	2	3
64-77-22	529	1	1	1			0.32			0.32					0.32	0.32		
64-77-23	532	1			1		1.60			1.60					1.60	1.60		
64-77-23.2	532	1			1		0.36				0.36				0.36	0.36		
64-77-29	530	1		1	1		1.70			1.70					1.70	1.70		
64-77-29.1	530	1		1	1		0.05				0.05				0.05	0.05		
64-77-30	530	1		1	1		1.28			1.28					1.28	1.28		
64-77-34	530/533	1	1		1		1.89			1.89					1.89	1.89		
64-78-29	532	1	1	1	1		2.13			2.13					2.13	2.13		
64-78-29.1	532	1	1	1	1		0.18				0.18				0.18	0.18		
64-78-29.2	532	1	1	1	1		0.26				0.26				0.26	0.26		
64-78-29.3	532	1	1	1	1		0.38				0.38				0.38	0.38		
65-76-07	528	1	1	1	1		0.63			0.63					0.63	0.63		
65-76-12.1	528	1	1		1		0.88				0.88				0.88	0.88		
65-76-13	528	1	1		1		0.25			0.25					0.25	0.25		
65-76-32	528	1	1	1			0.13				0.13				0.13	0.13		
65-77-06	528	1		1			0.31				0.31				0.31	0.31		
65-77-10	529	1		1			0.29			0.29					0.29	0.29		
65-77-10	529	1	1		1		0.90			0.90					0.90	0.90		
65-77-10	529	1	1	1			0.53			0.53					0.53	0.53		
65-77-10	529	1	1	1	1		0.18			0.18					0.18	0.18		
65-77-10.1	529	1	1	1	1		0.50			0.50					0.50	0.50		
65-77-10.2	529	1	1	1	1		0.32			0.32					0.32	0.32		
65-77-12.1	530	1	1				0.66			0.66					0.66	0.66		
65-77-12.1	530	1	1	1			0.66			0.66					0.66	0.66		
65-77-19	531.1	1			1		0.23				0.23				0.23	0.23		
65-77-19A	531.1	1			1		0.20				0.20				0.20	0.20		
65-77-20	531.1	1			1		0.29			0.29					0.29	0.29		
65-77-20.1	531.1	1			1		0.12			0.12					0.12	0.12		
65-77-22	529/531.1	1		1			1.38		1.38						1.38	1.38		
65-77-22.1	529/531.1	1		1			0.37			0.37					0.37	0.37		
65-77-22.1A	529/531.1	1		1			0.13				0.13				0.13	0.13		
65-77-22.2	531.1	1		1			0.20				0.20				0.20	0.20		
65-77-23	531.1	1		1			2.25		2.25						2.25	2.25		

Road Number	VCU	Alternative				GIS* Length	Road Class		Temp	Traffic Service Level				Road Maintenance		
		2	3	4	5		Arterial	Collector		A	B	C	D	1	2	3
65-77-23.2	531.1	1		1		0.09			0.09				0.09	0.09		
65-78-09	533	1	1		1	0.93							0.93	0.93		
65-78-10	533	1	1		1	1.32							1.32	1.32		
65-78-14	533	1	1		1	0.66							0.66	0.66		
65-78-19.1	533	1	1	1	1	0.52							0.52	0.52		
65-78-24	533/537.1	1	1		1	1.09		1.09					1.09	1.09		
65-78-24	533/537.1	1	1	1	1	2.09		2.09					2.09	2.09		
65-78-24.1	533	1	1	1	1	0.07			0.07				0.07	0.07		
65-78-24.2	533	1	1	1	1	0.22			0.22				0.22	0.22		
65-78-24.4	533	1	1		1	0.27			0.27				0.27	0.27		
65-78-24.5	533	1	1		1	0.11			0.11				0.11	0.11		
65-78-25	537.1	1	1	1	1	0.44							0.44	0.44		
65-78-31	531.1/533	1	1	1	1	1.01							1.01	1.01		
65-78-32	536	1	1	1		0.56							0.56	0.56		
65-78-32.1	536	1	1	1		0.44							0.44	0.44		
65-79-05	534/534.1	1	1	1	1	4.75							4.75	4.75		
65-79-05.2	534	1		1	1	0.40			0.40				0.40	0.40		
65-79-05.2A	534	1		1	1	0.26			0.26				0.26	0.26		
65-79-13	535	1	1	1	1	1.61							1.61	1.61		
65-79-13.1	535	1	1	1	1	0.04			0.04				0.04	0.04		
65-79-13.2	535	1	1	1	1	0.12			0.12				0.12	0.12		
65-79-13.3	535	1	1	1	1	0.13			0.13				0.13	0.13		
65-79-25	535	1	1	1	1	0.72			0.72				0.72	0.72		
65-80-19	535/539	1	1	1	1	0.58							0.58	0.58		
65-80-31	539	1		1	1	0.90							0.90	0.90		
66-78-05	536	1				0.73							0.73	0.73		
66-78-34	536	1		1	1	0.23							0.23	0.23		
66-79-15	538	1		1		0.40			0.40				0.40	0.40		
66-79-15.2	538	1		1		0.10			0.10				0.10	0.10		
66-79-15.3	538	1		1		0.09			0.09				0.09	0.09		
66-79-25	538/540	1	1	1		0.83			0.83				0.83	0.83		
66-79-25.1	538/540	1	1	1		0.18			0.18				0.18	0.18		
66-79-35	538	1	1	1		0.12			0.12				0.12	0.12		

Road Number	VCU	Alternative					GIS*		Road Class			Traffic Service Level				Road Maintenance		
		2	3	4	5		Length	Arterial	Collector	Local	Temp	A	B	C	D	1	2	3
66-80-04	540	1	1	1	1		1.41			1.41					1.41	1.41		
66-80-04.1	540	1	1	1	1		0.08			0.08					0.08	0.08		
66-80-04.2	540	1	1	1	1		0.25			0.25					0.25	0.25		
66-80-04.2-1	540	1	1	1	1		0.04				0.04				0.04	0.04		
66-80-05	539	1		1	1		1.32			1.32					1.32	1.32		
66-80-07	539/540	1		1			0.51				0.51				0.51	0.51		
66-80-08	539/540	1	1	1	1		0.91			0.91					0.91	0.91		
66-80-11	551	1	1		1		0.13				0.13				0.13	0.13		
66-80-19	540	1	1	1			0.48			0.48					0.48	0.48		
66-80-28A	551	1	1		1		1.90			1.90					1.90	1.90		
66-80-28B	551	1	1		1		3.23			3.23					3.23	3.23		
66-80-28.1	551	1	1	1	1		0.13				0.13				0.13	0.13		
66-80-28.2	551	1	1		1		0.06				0.06				0.06	0.06		
66-80-28.3	551	1	1		1		0.07				0.07				0.07	0.07		
66-80-28.4	551	1	1		1		0.17				0.17				0.17	0.17		
66-80-28.4A	551	1	1		1		0.04				0.04				0.04	0.04		
66-80-28.5	551	1	1		1		0.05				0.05				0.05	0.05		
66-80-28.6	551	1	1		1		0.24				0.24				0.24	0.24		
66-80-30	538/540	1	1	1			0.94			0.94					0.94	0.94		
66-80-33	551	1	1		1		3.83			3.83					3.83	3.83		
66-80-33A	551	1	1		1		0.24				0.24				0.24	0.24		
66-80-33A1	551	1	1		1		0.01				0.01				0.01	0.01		
66-80-33B	551	1	1		1		0.69				0.69				0.69	0.69		
66-80-33.2	551	1	1		1		0.27				0.27				0.27	0.27		
66-80-33.5	551	1	1		1		0.84			0.84					0.84	0.84		
66-80-33.6	551	1	1		1		0.21			0.21					0.21	0.21		
66-80-34	551	1	1		1		0.71			0.71					0.71	0.71		
66-80-34A	551	1	1		1		0.21			0.21					0.21	0.21		
66-80-34B	551	1	1		1		0.05			0.05					0.05	0.05		
67-80-04A	551	1	1		1		1.18			1.18					1.18	1.18		
67-80-04B	551	1	1		1		0.99			0.99					0.99	0.99		
67-80-04.1	551	1	1		1		0.19				0.19				0.19	0.19		
67-80-04.3	551	1	1		1		0.18				0.18				0.18	0.18		

Road			Alternative					GIS*	Road Class		Traffic Service Level				Road Maintenance		
Number	VCU	2	3	4	5	Length	Arterial	Collector	Local	Temp	A	B	C	D	1	2	3
67-80-08	551	1	1		1	0.66		0.66						0.66	0.66		
Reconstruction Roads																	
15	536	1	1			0.79	0.79										
29	536	1	1			0.28	0.28							0.28	0.28		
29	536	1				0.13	0.13							0.13	0.13		
1598	536	1	1	1		0.85		0.85						0.85	0.85		
1598	536	1	1	1		0.12			0.12					0.12	0.12		
2078	533	1	1		1	0.06		0.06						0.06	0.06		
1500886	536	1	1	1		0.80			0.80				0.80			0.80	
2000810	532	1			1	0.14			0.14				0.14			0.14	
2900500	528	1	1		1	0.07			0.07					0.07	0.07		
2931100	531.1	1				0.84			0.89					0.84	0.84		
2931100	531.1	1			1	1.01			1.01					1.01	1.01		
3000570	535/539	1	1	1		0.37			0.37					0.37	0.37		
3000570	535/539	1	1	1	1	0.39			0.39					0.39	0.39		
2000864spur	529	1	1			0.27			0.27					0.27	0.27		
2086spur	529	1			1	0.88			0.88					0.88	0.88		
27spur	538	1		1		0.93			0.93					0.93	0.93		
2931100spur1	531.1	1			1	0.10			0.10					0.10	0.10		
2931100spur2	531.1	1			1	0.10			0.10					0.10	0.10		

Appendix J

- J-1 Deer Harvest by Community**
- J-2 Marten and Black Bear
Harvest by Community**
- J-3 Cumulative Effects by WAA**
- J-4 TRUCs Maps**
- J-5 Deer Harvest Statistics**

J-1 Deer Harvest by Community

SUMMARY DEER HARVEST STATISTICS

LAB BAY STUDY AREA

BY COMMUNITY, YEAR, AND WAA

Based on Alaska Department of Fish and Game
Annual Hunter Survey Information, 1988-1991

SUMMARY DEER HARVEST STATISTICS

LAB BAY STUDY AREA

BY COMMUNITY, YEAR, AND WAA

Based on Alaska Department of Fish and Game
Annual Hunter Survey Information, 1988-1991

Coffman Cove, Summary Deer Harvest (1988 - 1991)

WAA	Year				4 Year Total	4 Year Harvest	% of Community Harvest	4 Year WAA Harvest	Com. Harvest as % of WAA
	1988	1989	1990	1991					
1527	2	0	0	4	12	3	2.8%	139	8.6%
1528	4	0	0	0	4	1	0.9%	170	3.6%
1529	0	0	0	0	0	0	0.0%	770	0.0%
1530	9	33	23	0	65	16.3	15.3%	699	9.3%
Other	103	87	88	67	345	86.3	81.0%	56058	0.6%
TOTAL	118	126	111	71	426	106.5	100.0%	57836	0.7%

Craig, Summary Deer Harvest (1988 - 1991)

WAA	YEAR				4 Year Total	4 Year Average	% of Community Harvest	4 Year WAA Harvest	Com. Harvest as % of WAA
	1988	1989	1990	1991					
1527	0	0	0	0	9	2.3	0.4%	139	0.0%
1528	0	0	0	0	0	2.3	0.4%	170	5.3%
1529	44	13	25	64	146	36.5	0.9%	770	19.0%
1530	26	0	6	0	32	8	1.4%	699	4.6%
Other	509	557	603	413	2082	520.5	91.4%	56058	3.7%
TOTAL	597	570	634	477	2278	569.5	100.0%	57836	3.9%

Edna Bay, Summary Deer Harvest (1988 - 1991)

WAA	YEAR				4 Year Total	4 Year Average	% of Community Harvest	4 Year WAA Harvest	Com. Harvest as % of WAA
	1988	1989	1990	1991					
1527	0	0	0	0	0	0	0.0%	139	0.0%
1528	0	0	0	0	0	0	0.0%	170	0.0%
1529	0	0	0	0	0	0	0.4%	770	0.0%
1530	0	0	0	0	0	0	0.0%	699	0.0%
Other	83	38	62	74	257	64.3	100.0%	56058	0.5%
TOTAL	83	38	62	74	257	64.3	100.0%	57836	0.4%

Ketchikan, Summary Deer Harvest (1988 - 1991)

Hollis, Summary Deer Harvest (1988 - 1991)									
WAA	YEAR				4 Year Total	4 Year Average	% of Community Harvest	4 Year WAA Harvest	Com. Harvest as % of WAA
	1988	1989	1990	1991					
1527	0	0	0	0	0	0	0.0%	139	0.0%
1528	0	0	0	0	0	0	0.0%	170	0.0%
1529	0	0	5	0	5	1.3	0.0%	770	0.0%
1530	0	1	3	1	5	1.3	6.0%	699	0.7%
Other	25	5	27	16	73	18.3	88.0%	56058	0.1%
TOTAL	25	6	35	17	83	20.8	100.0%	57836	0.1%

Hydaburg, Summary Deer Harvest (1988 - 1991)									
WAA	YEAR				4 Year Total	4 Year Average	% of Community Harvest	4 Year WAA Harvest	Com. Harvest as % of WAA
	1988	1989	1990	1991					
1527	0	0	0	0	0	0	0.0%	139	0.0%
1528	0	0	0	0	0	0	0.0%	170	0.0%
1529	0	0	3	0	3	0.8	2.1%	770	0.4%
1530	0	0	0	0	0	0	0.0%	699	0.0%
Other	56	30	39	17	142	35.5	97.9%	56058	0.3%
TOTAL	56	30	42	17	145	36.3	100.0%	57836	0.3%

Juneau, Summary Deer Harvest (1988 - 1991)									
WAA	YEAR				4 Year Total	4 Year Average	% of Community Harvest	4 Year WAA Harvest	Com. Harvest as % of WAA
	1988	1989	1990	1991					
1527	0	0	0	0	0	0	0.0%	139	0.0%
1528	0	0	0	0	0	0	0.0%	170	0.0%
1529	0	0	0	0	0	0	0.0%	770	0.0%
1530	6	0	0	0	6	1.5	0.0%	699	0.9%
Other	3992	3761	4213	2871	14837	3709.3	100.0%	56058	26.5%
TOTAL	3998	3761	4213	2871	14843	3710.8	100.0%	57836	25.7%

Metlakatla, Summary Deer Harvest (1988 - 1991)

WAA	YEAR				4 Year Total	4 Year Average	% of Community Harvest	4 Year WAA Harvest	Com. Harvest as % of WAA
	1988	1989	1990	1991					
1527	0	0	7	31	38	9.5	0.6%	139	27.3%
1528	0	0	7	0	7	1.8	0.1%	170	4.1%
1529	0	20	127	61	208	52	3.4%	770	27.0%
1530	91	51	71	61	274	68.5	4.5%	699	39.2%
Other	1549	1473	1526	1036	5584	1396	91.4%	56058	10.0%
TOTAL	1640	1544	1738	1189	6111	1527.8	100.0%	57836	10.6%

Klawock, Summary Deer Harvest (1988 - 1991)

WAA	YEAR				4 Year Total	4 Year Average	% of Community Harvest	4 Year WAA Harvest	Com. Harvest as % of WAA
	1988	1989	1990	1991					
1527	11	0	0	19	39	9.8	3.4%	139	28.1%
1528	0	21	0	0	21	5.3	1.8%	170	12.4%
1529	0	28	36	0	64	16	5.6%	770	8.3%
1530	0	0	0	0	0	0	0.0%	699	0.0%
Other	239	190	250	347	1026	256.5	89.2%	56058	1.8%
TOTAL	250	239	295	366	1150	287.5	100.0%	57836	2.0%

Labouchere Bay, Summary Deer Harvest (1988 - 1991)

WAA	YEAR				4 Year Total	4 Year Average	% of Community Harvest	4 Year WAA Harvest	Com. Harvest as % of WAA
	1988	1989	1990	1991					
1527	0	1	0	0	1	0.3	0.6%	139	0.7%
1528	0	0	0	0	0	0	0.0%	170	0.0%
1529	24	47	64	17	152	38	91.6%	770	19.7%
1530	0	0	0	0	0	0	0.0%	699	0.0%
Other	0	1	12	0	13	3.3	7.8%	56058	0.0%
TOTAL	24	49	76	17	166	41.5	100.0%	57836	0.3%

Other Alaska, Summary Deer Harvest (1988 - 1991)

WAA	YEAR				4 Year Total	4 Year Average	% of Community Harvest	4 Year WAA Harvest	Com. Harvest as % of WAA
	1988	1989	1990	1991					
1527	0	5	0	0	5	1.3	3.4%	139	3.6%
1528	0	0	0	0	0	0	0.0%	170	0.0%
1529	0	0	0	6	6	1.5	4.1%	770	0.8%
1530	3	0	0	0	3	0.8	2.0%	699	0.4%
Other	40	33	34	29	136	34	91.9%	56058	0.2%
TOTAL	43	38	32	35	148	37	100.0%	57836	0.3%

Meyers Chuck, Summary Deer Harvest (1988 - 1991)

WAA	YEAR				4 Year Total	4 Year Average	% of Community Harvest	4 Year WAA Harvest	Com. Harvest as % of WAA
	1988	1989	1990	1991					
1527	0	0	0	0	0	0	0.0%	139	0.0%
1528	0	0	0	0	0	0	0.0%	170	0.0%
1529	0	0	0	0	0	0	0.0%	770	0.0%
1530	0	0	0	0	0	0	0.0%	699	0.0%
Other	18	17	17	14	66	16.5	100.0%	56058	0.1%
TOTAL	18	17	17	14	66	16.5	100.0%	57836	0.1%

Naukati Camp, Summary Deer Harvest (1988 - 1991)

WAA	YEAR				4 Year Total	4 Year Average	% of Community Harvest	4 Year WAA Harvest	Com. Harvest as % of WAA
	1988	1989	1990	1991					
1527	0	0	0	0	0	0	0.0%	139	0.0%
1528	0	0	0	0	0	0	0.0%	170	0.0%
1529	0	0	0	0	0	0	0.0%	770	0.0%
1530	0	0	0	6	6	1.5	5.2%	699	0.9%
Other	13	21	48	27	109	27.3	94.8%	56058	0.2%
TOTAL	13	21	48	33	115	28.8	100.0%	57836	0.2%

Point Baker, Summary Deer Harvest (1988 - 1991)

WAA	YEAR				4 Year Total	4 Year Average	% of Community Harvest	4 Year WAA Harvest	Com. Harvest as % of WAA
	1988	1989	1990	1991					
1527	0	0	0	0	0	0	139	0.0%	
1528	0	0	0	0	0	0	170	0.0%	
1529	0	0	0	0	0	0	770	0.0%	
1530	0	5	0	0	5	1.3	699	0.7%	
Other									
TOTAL	0	5	0	0	5	1.3	1778	0.3%	

Outside of Alaska, Summary Deer Harvest (1988 - 1991)

WAA	YEAR				4 Year Total	4 Year Average	% of Community Harvest	4 Year WAA Harvest	Com. Harvest as % of WAA
	1988	1989	1990	1991					
1527	0	0	0	0	0	0	139	0.9%	
1528	10	0	0	5	15	3.8	170	0.9%	
1529	5	0	0	2	7	1.8	770	0.9%	
1530	0	0	0	0	0	0	699	0.0%	
Other	39								
TOTAL	15	0	0	46	61	15.3	1778	3.4%	

Petersburg, Summary Deer Harvest (1988 - 1991)

WAA	YEAR				4 Year Total	4 Year Average	% of Community Harvest	4 Year WAA Harvest	Com. Harvest as % of WAA
	1988	1989	1990	1991					
1527	16	0	0	0	16	4	139	11.5%	
1528	16	23	5	11	55	13.8	170	32.4%	
1529	21	28	20	0	69	17.3	770	9.0%	
1530	5	14	0	0	19	4.8	699	2.7%	
Other	1122	1037	1509	631	4299	1074.8	56058	7.7%	
TOTAL	1180	1102	1534	642	4458	1114.5	57836	7.7%	

WAA	YEAR				4 Year Total	4 Year Average	% of Community Harvest	4 Year WAA Harvest	Com. Harvest as % of WAA
	1988	1989	1990	1991					

WAA	YEAR				4 Year Total	4 Year Average	% of Community Harvest	4 Year WAA Harvest	Com. Harvest as % of WAA
	1988	1989	1990	1991					
1527	5	0	0	0	5	1.3	6.6%	139	3.6%
1528	0	0	8	0	8	2	10.5%	170	4.7%
1529	18	21	6	4	49	12.3	64.5%	770	6.4%
1530	0	0	0	0	0	0	0.0%	699	0.0%
Other	6	6	2	0	14	3.5	18.4%	56058	0.0%
TOTAL	29	27	16	4	76	19	100.0%	57836	0.1%

Port Protection, Summary Deer Harvest (1988 - 1991)									
WAA	YEAR				4 Year Total	4 Year Average	% of Community Harvest	4 Year WAA Harvest	Com. Harvest as % of WAA
	1988	1989	1990	1991					
1527	0	0	0	0	0	0	0.0%	139	0.0%
1528	0	0	0	0	0	0	0.0%	170	0.0%
1529	0	0	16	0	16	4	100.0%	770	2.1%
1530	0	0	0	0	0	0	0.0%	699	0.0%
Other	0	0	0	0	0	0	0.0%	56058	0.0%
TOTAL	0	0	16	0	16	4	100.0%	57836	0.0%

Skowl Arm/Polk, Summary Deer Harvest (1988 - 1991)									
WAA	YEAR				4 Year Total	4 Year Average	% of Community Harvest	4 Year WAA Harvest	Com. Harvest as % of WAA
	1988	1989	1990	1991					
1527	0	0	0	0	0	0	0.0%	139	0.0%
1528	0	0	0	0	0	0	0.0%	170	0.0%
1529	8	0	0	0	8	2	9.1%	770	1.0%
1530	0	0	0	0	0	0	0.0%	699	0.0%
Other	29	15	24	12	80	20	90.9%	56058	0.1%
TOTAL	37	15	24	12	88	22	100.0%	57836	0.2%

1527	0	0	6	0	6	1.5	0.4%	139	4.3%
1528	0	7	0	0	7	1.8	0.5%	170	4.1%
1529	5	0	0	0	5	1.3	0.4%	770	0.6%
1530	0	0	6	0	6	1.5	0.4%	699	0.9%
Other	309	342	428	291	1370	342.5	98.3%	56058	2.4%
TOTAL	314	349	440	291	1394	348.5	100.0%	57836	2.4%

Whale Pass, Summary Deer Harvest (1988 - 1991)									
WAA	YEAR				4 Year Total	4 Year Average	% of Community Harvest	4 Year WAA Harvest	Com. Harvest as % of WAA
	1988	1989	1990	1991					
1527	0	0	5	3	8	2	4.4%	139	5.8%
1528	0	0	2	7	9	2.3	0.0%	170	5.8%
1529	3	0	5	3	11	2.8	0.0%	770	1.4%
1530	25	31	14	19	89	22.3	48.9%	699	12.7%
Other	5	33	17	10	65	16.3	35.7%	56058	0.1%
TOTAL	33	64	43	42	182	45.5	100.0%	57836	0.3%

Wrangell, Summary Deer Harvest (1988 - 1991)									
WAA	YEAR				4 Year Total	4 Year Average	% of Community Harvest	4 Year WAA Harvest	Com. Harvest as % of WAA
	1988	1989	1990	1991					
1527	0	0	0	0	0	0	0.0%	139	0.0%
1528	24	0	11	0	35	8.8	2.6%	170	20.6%
1529	18	0	0	0	18	4.5	4.4%	770	2.3%
1530	36	61	92	0	189	47.3	14.1%	699	27.0%
Other	283	325	224	262	1094	273.5	81.9%	56058	2.0%
TOTAL	361	386	327	262	1336	334	100.0%	57836	2.3%

J-2 Marten and Black Bear Harvest by Community

MARTEN AND BLACK BEAR HARVEST STATISTICS
LAB BAY STUDY AREA
BY COMMUNITY, YEAR, AND WAA

Based on Alaska Department of Fish and Game
Annual Hunter Survey Information, 1987-1991

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Marten Harvest, Lab Bay Project Area, 1988/89 Season							
Community	WAA				Project Area Total	Outside Project Area	TOTAL Harvest
	1527	1528	1529	1530			
Ketchikan	19				19	197	216
Meyers Chuck	1				1	0	1
Wrangell		7			7	0	7
Subsistence	1	7	-	-	8		
Non-Subsistence	19	-	-	-	19		

Marten Harvest, Lab Bay Project Area, 1989/90 Season							
Community	WAA				Project Area Total	Outside Project Area	TOTAL Harvest
	1527	1528	1529	1530			
Craig	3				3	154	157
Ketchikan	24				24	205	229
Point Baker			49		49	0	49
Wrangell		23			23	1	24
Total	27	23	49	0	49	360	459
Subsistence	3	23	49	-	75		
Non-subsistence	24	-	-	-	24		

Marten Harvest, Lab Bay Project Area, 1990/91 Season							
Community	WAA				Project Area Total	Outside Project Area	TOTAL Harvest
	1527	1528	1529	1530			
Ketchikan				39	39	75	114
Point Baker			5		5	0	5
Wrangell		12			12	14	26
Total	-0	12	5	39	56	89	145
Subsistence	-	12	5	-	17		
Non-Subsistence	-	-	-	39	39		

Black Bear Harvest, Lab Bay Project Area, 1980/81 Season

Community	WAA				Project Area Total	Outside Project Area	TOTAL Harvest
	1527	1528	1529	1530			
Ketchikan	3		2		5	23	28
Labouchere Bay			1		1	0	1
Petersburg	1				1	0	1
Thorne Bay	1				1	4	5
Tillamook			1		1	1	2
Whale Pass	1				1	0	1
Wrangell			3		3	0	3
Other Alaska					0	13	13
Non-Alaska USA					0	32	32
Outside USA					0	0	0
Total	6	0	7	0	13	73	86
Subsistence	3	-	5	-	8		
Non-Subsistence	3	-	2	-	5		

Black Bear Harvest, Lab Bay Project Area, 1981/82 Season							
Community	WAA				Project Area Total	Outside Project Area	TOTAL Harvest
	1527	1528	1529	1530			
Ketchikan	5				5	33	38
Port Alice	1				1	0	1
Thirne Bay	2				2	7	9
Tok			1		1	0	1
Whale Pass	1				1	0	1
Wrangell			1		1	6	7
Other Alaska					0	18	18
Non-Alaska USA					0	20	20
Outside USA					0	9	9
Total	9	0	2	0	11	93	104
Subsistence	4	-	-	-	0		
Non-subsistence	5	-	2	-	7		

Black Bear Harvest, Lab Bay Project Area, 1982/83 Season							
Community	WAA				Project Area Total	Outside Project Area	TOTAL Harvest
	1527	1528	1529	1530			
Homer	1				1	0	1
Ketchikan	8				8	23	31
Whale Pass	1				1	0	1
Other Alaska					3	36	36
Non-Alaska USA	4	1			5	22	27
Outside USA		2	2		4	0	1
Total	14	3	2	0	19	81	100
Subsistence	2	-	-	-	2		
Non-Subsistence	12	3	2	-	17		

Black Bear Harvest, Lab Bay Project Area, 1983/84 Season							
Community	WAA				Project Area Total	Outside Project Area	TOTAL Harvest
	1527	1528	1529	1530			
Craig			1		1	12	13
Ketchikan	6	1	2		9	25	34
Klawock	1				1	2	3
Thorne Bay	6				6	7	11
Wrangell		1			1	0	1
Other Alaska					0	13	13
Non-Alaska USA	3	1			4	41	45
Outside USA					0	0	-
Total	14	3	3	0	20	100	120
Subsistence	11	2	3	-	16		
Non-Subsistence	3	1	-	-	4		

Black Bear Harvest, Lab Bay Project Area, 1984/85 Season							
Community	WAA				Project Area Total	Outside Project Area	TOTAL Harvest
	1527	1528	1529	1530			
Anchorage	1				4	5	6
Craig	4				4	7	11
Juneau	1				4	1	2
Ketchikan	3				3	20	23
Klawock	1		1		2	1	3
Petersburg	2				2	0	2
Sitka	1				4	4	1
Ward Cove	2				2	1	3
Wrangell		1			4	4	1
Other Alaska					0	18	18
Non-Alaska USA			1		1	15	16
Outside USA					0	4	3
Total	15	1	2	0	18	72	90
Subsistence	10	1	1	1	12		
Non-Subsistence	5	-	1	-	6		

Black Bear Harvest, Lab Bay Project Area, 1985/86 Season							
Community	WAA				Project Area Total	Outside Project Area	TOTAL Harvest
	1527	1528	1529	1530			
Fairbanks			1		1	3	4
Ketchikan	10				10	29	39
Kodiak	1				1	2	3
Petersburg		1			1	1	2
Thorne Bay	1				1	15	16
Tokeen	1				1	3	4
Ward Cove			1		1	5	6
Whale Pass	1				1	0	1
Wrangell	1				1	2	3
Other Alaska					0	47	47
Non-Alaska USA	3				3	43	46
Outside USA					0	3	3
Total	18	1	2	0	21	153	174
Subsistence	5	1	2	-	8		
Non-Subsistence	13	-	-	-	13		

Black Bear Harvest, Lab Bay Project Area, 1986/87 Season							
Community	WAA				Project Area Total	Outside Project Area	TOTAL Harvest
	1527	1528	1529	1530			
Craig	1				1	19	20
Juneau	2				2	1	-
Ketchikan	4		5		9	13	22
Klawock	1				1	13	14
Kodiak	2				2	3	5
Thorne Bay	1				1	7	8
Whale Pass	1				1	0	1
Wrangell		1	2		3	2	5
Other Alaska					6	21	21
Non-Alaska USA	4	1	1		6	49	55
Outside USA					6	0	-
Total	16	2	8	0	26	128	154
Subsistence	6	1	2	-	9		
Non-Subsistence	10	1	6	-	17		

Black Bear Harvest, Lab Bay Project Area, 1987/88 Season							
Community	WAA				Project Area Total	Outside Project Area	TOTAL Harvest
	1527	1528	1529	1530			
Craig	2		1		3	13	16
Ketchikan	9				9	13	22
Palmer	1				1	0	1
Petersburg	1				1	0	1
Sitka			2		2	2	4
Ward Cove	3				3	1	4
Whale Pass	1				1	0	1
Wrangell	1	1			2	0	2
Other Alaska					0	36	36
Non-Alaska USA	5		4		9	52	61
Outside USA					0	6	6
Total	23	1	7	0	31	123	154
Subsistence	9	1	3	-	13		
Non-Subsistence	14	-	4	-	18		

Black Bear Harvest, Lab Bay Project Area, 1988/89 Season							
Community	WAA				Project Area Total	Outside Project Area	TOTAL Harvest
	1527	1528	1529	1530			
Ketchikan	5				5	22	27
Metlakatla			2		2	1	3
Palmer	1		1		2	1	3
Petersburg	2				2	1	3
Thorne Bay	1				1	10	11
Ward Cove	3				3	1	3
Whale Pass	2				2	0	2
Other Alaska					0	29	29
Non-Alaska USA	5				5	115	120
Outside USA					0	9	9
Total	19	0	3	0	22	189	211
Subsistence	9	-	3	-	12		
Non-Subsistence	10	-	-	-	10		

Black Bear Harvest, Lab Bay Project Area, 1989/90 Season							
Community	WAA				Project Area Total	Outside Project Area	TOTAL Harvest
	1527	1528	1529	1530			
Fairbanks			1		1	0	1
Fort Wainwright			1		1	2	3
Ketchikan	1				4	17	18
Klawock			2		2	0	8
Ward Cove	1				4	0	5
Wrangell					0	3	3
Other Alaska		1			1	51	52
Non-Alaska USA	3	3	2	2	10	117	127
Outside USA					0	5	5
Total	5	4	6	2	17	205	222
Subsistence	1	1	2	-	4		
Non-Subsistence	4	3	4	2	13		

Black Bear Harvest, Lab Bay Project Area, 1990/91 Season							
Community	WAA				Project Area Total	Outside Project Area	TOTAL Harvest
	1527	1528	1529	1530			
Ambler				1	1	0	1
Anchorage			1		1	4	5
Douglas			2		2	0	2
Fairbanks	2			4	6	2	8
Ketchikan	1		3		4	25	29
Klawock	1		2		3	12	15
Naukati				1	1	1	2
Thorne Bay	1				1	12	13
Ward Cove	3				3	5	8
Whale Pass				1	1	0	1
Other Alaska					0	25	25
Non-Alaska USA	2		8	8	16	73	89
Outside USA					0	7	7
Total	10	0	16	13	39	166	205
Subsistence	5	-	2	3	10		
Non-Subsistence	5	-	14	10	29		

J-3 Cumulative Effects by WAA

**CUMULATIVE EFFECTS TABLES
HCM PROJECTIONS THROUGH TIME
FOR WAA USE AREAS
FOR LAB BAY STUDY COMMUNITIES**

Based on Proposed Revised TLMP
WWA HCM Projections

WADSWORTH COUNTY, NEW YORK
JULY 10, 1911
JULY 10, 1911
JULY 10, 1911

THE NEW YORK STATE DEPARTMENT OF AGRICULTURE
ALBANY, N. Y.

**WAA Land Use Groupings, Coffman Cove
Average Deer Harvest (1988-1991) and Habitat Capability Model Results**

Name	Percent of Community Harvest	WAAs	Average Deer Harvest		1990 HCM	2004 HCM	2040 HCM	Percentage WAA Deer Harvest	
			Com	WAAs				Subsistence	Non- Subsistence
A.I.L.	100	408,1108,1315,1319,1420,1421, 1422,1527,1528,1530,1906,9999	107	1419	2332	2207	1620	65	35
MAIN	86	1420,1421,1530	92	506	597	551	372	54	46
LOW	14	408,1108,1315,1319,1422,1527, 1528,1906,9999	15	913	1735	1656	1248	71	29
CORE	71	1420,1421	76	331	411	378	233	51	49

ALL includes all WAAs for which there is documented deer harvest from this community.

MAIN includes that group of WAAs from which about 90% of this community's total documented deer harvest has been taken.

LOW includes those WAAs included in ALL but not in MAIN.

CORE includes those individual WAAs from which 3.4% or more of this community's total documented deer harvest has been taken. Documented deer harvest statistics are based on ADF&G hunter survey information.

1990 and 2040 HCM results are for the preferred alternative from TLMP 1991.

**WAA Land Use Groupings, Craig
Average Deer Harvest (1988-1991) and Habitat Capability Model Results**

Name	Percent of Community Harvest	WAAs	Average Deer Harvest		1990 HCM	2004 HCM	2004 HCM	Percentage WAA Deer Harvest	
			Com	WAAs				Subsistence	Non- Subsist
ALL	100	408,901,902,1003,1105,1107,1214, 1315,1316,1317,1318,1319,1323, 1332,1421,1422,1525,1526,1527, 1528,1529,1530,1531	570	2471	6257	5954	4347	70	30
MAIN	90	1003,1316,1317,1318,1319,1323, 1332,1421,1422,1529,1531	512	1803	2689	2496	1679	72	28
LOW	10	408,901,902,1105,1107,1214,1315, 1525,1526,1527,1528,1530	58	668	3568	3459	2669	65	35
CORE	78	1003,1318,1319,1323,1421,1422, 1529,1531	446	1611	1954	1838	1183	72	28

ALL includes all WAAs for which there is documented deer harvest from this community.

MAIN includes that group of WAAs from which about 90% of this community's total documented deer harvest has been taken.

LOW includes those WAAs included in ALL but not in MAIN.

CORE includes those individual WAAs from which 4.6% or more of this community's total documented deer harvest has been taken. Documented deer harvest statistics are based on ADF&G hunter survey information.

1990 and 2040 HCM results are for the preferred alternative from TLMP 1991.

WAA Land Use Groupings, Hollis
Average Deer Harvest (1988-1991) and Habitat Capability Model Results

Name	Percent of Community Harvest	WAAs	Average Deer Harvest		1990 HCM	2004 HCM	2040 HCM	Percentage WAA Deer Harvest	
			Com	WAAs				Subsistence	Non-Subsist
ALL	100	902,1211,1214,1315,1316,1317,1318,1421,1422,1529,1530	21	1662	2863	2760	2037	66	34
MAIN	93	1211,1315,1316,1317,1318,1421,1529,1530	19	1251	1618	1511	1052	68	32
LOW	7	902,1214,1422	2	411	1246	1249	986	60	43
CORE	66	1211,1315,1316,1317	14	315	695	670	471	57	43

ALL includes all WAAs for which there is documented deer harvest from this community.

MAIN includes that group of WAAs from which about 90% of this community's total documented deer harvest has been taken.

LOW includes those WAAs included in ALL but not in MAIN.

CORE includes those individual WAAs from which 9.6% or more of this community's total documented deer harvest has been taken. Documented deer harvest statistics are based on ADF&G hunter survey information.

1990 and 2040 HCM results are for the preferred alternative from TLMP 1991.

**WAA Land Use Groupings, Hydaburg
Average Deer Harvest (1988-1991) and Habitat Capability Model Results**

Name	Percent of Community Harvest	WAAs	Average Deer Harvest		1990 HCM	2040 HCM	2040 HCM	Percentage Harvest	
			Com	WAAs				Subsistence	WAA Deer Harvest
ALL	100	901,1107,1317,1318,1319,1323, 1332,1420,1421,1422,1529	40	1772	3071	2922	2038	72	28
MAIN	88	901,1107,1319,1332,1420,1421, 1422	36	1035	2333	2268	1557	66	35
LOW	12	1317,1318,1323,1529	5	738	737	654	481	81	19
CORE	67	901,1107,1332,1420	27	218	1299	1269	934	62	38

ALL includes all WAAs for which there is documented deer harvest from this community.
 MAIN includes those WAAs from which about 90% of this community's total documented deer harvest has been taken.
 LOW includes that group of WAAs included in ALL but not in MAIN.
 CORE includes those individual WAAs from which 14.3% or more of this community's total documented deer harvest was taken.
 Documented deer harvest statistics are based on ADF&G hunter survey information.
 1990 and 2040 HCM results are for the preferred alternative from TLMP 1991.

WAA Land Use Groupings, Ketchikan Average Deer Harvest (1988-1991) and Habitat Capability Model Results									
Name	Percent of Com Harvest	WAAs	Average Deer Harvest		1990 HCM	2004 HCM	2040 HCM	Percentage WAA Deer Harvest	
			Com	WAAs				Subsistence	Non-Subsist
ALL	100	101,202,404,406,407,408,509,510,612,613,614,901, 902,1003,1105,1106,1107,1108,1209,1210,1211, 1212,1213,1214,1315,1316,1317,1318,1319,1323,13 32,1420,1421,1422,1525,1526,1527,1528,1529, 1530,1531,1707,1817,1901,1910,2722,3001,3002, 3104,3308,3309,3311,3313,3314,3315,3418,3524, 3525,3627,3629,3630,3731,3835,3836,3938,3940, 4043,4145,4150,4222	1509	5469	14807	13945	11615	59	41
MAIN	90	101,406,407,408,509,510,612,613,901,1003,1106, 1107,1211,1212,1214,1315,1316,1317,1318,1319, 1323,1420,1421,1422,1526,1529,1530,1817,1910, 3308,3315,3731,3940	1358	3511	7339	7084	5621	60	40
LOW	10	202,404,614,902,1105,1108,1209,1210,1213,1332, 1525,1527,1528,1531,1707,1901,2722,3001,3002, 3104,3309,3311,3313,3314,3418,3524,3525,3627, 3629,3630,3835,3836,3938,4043,4145,4150,4222	151	1958	7468	6861	5995	58	42
CORE	68	101,406,407,408,509,613,1003,1106,1211,1214, 1319,1420,1421,1422,1529,1530	1023	2020	3220	3095	2298	49	51
SUPER CORE	42	101,406,407,613,1211,1421,1422,1530	634	1075	1884	1860	1442	39	61
ALL includes all WAAs for which there is documented deer harvest from this community. MAIN includes that group of WAAs from which about 90% of this community's total documented deer harvest has been taken. LOW includes those WAAs included in ALL but not in MAIN. CORE includes those individual WAAs from which 3% or more of this community's total documented deer harvest has been taken. SUPER CORE includes those individual WAAs from which 3.9% or more of the community documented deer harvest was taken. Documented deer harvest statistics are based on ADF&G hunter survey information. 1990 and 2040 HCM results are for the preferred alternative from TLMP 1991.									

WAA Land Use Groupings, Klawock

Average Deer Harvest (1988-1991) and Habitat Capability Model Results

Name	Percent of Community Harvest	WAAs	Average Deer Harvest		1990 HCM	2004 HCM	2040 HCM	Percentage WAA Deer Harvest	
			Com	WAAs				Subsistence	Non-Subsist
ALL	100	902,1003,1107,1315,1317,1318,1319,1323,1332,1421,1422,1526,1527,1528,1529,3526,3627,3629	288	2456	4828	4553	3429	66	34
MAIN	91	1317,1318,1319,1323,1421,1422,1527,1528,1529	261	1632	1982	1826	1254	74	26
LOW	9	902,1003,1107,1315,1332,1526,3526,3627,3629	27	825	2846	2727	2175	50	50
CORE	74	1318,1319,1323,1422	212	1091	1105	1065	688	78	22

ALL includes all WAAs for which there is documented deer harvest from this community.

MAIN includes that group of WAAs from which about 90% of this community's total documented deer harvest has been taken.

LOW includes those WAAs included in ALL but not in MAIN.

CORE includes those individual WAAs from which 8.7% or more of this community's total documented deer harvest has been taken.

Documented deer harvest statistics are based on ADF&G hunter survey information.

1990 and 2040 HCM results are for the preferred alternative from TLMP 1991.

WAA Land Use Groupings, Labouchere Bay Average Deer Harvest (1988 - 1991) and Habitat Capability Model Results									
Name	Percent of Community Harvest	WAAs	Average Deer Harvest		1990 HCM	2004 HCM	2040 HCM	Percentage WAA Deer Harvest	
			Com	WAAs				Subsistence	Non- Subsist
ALL	100	1422,1524,1527,1529,1531	42	572	1199	1046	760	69	31
MAIN	92	1529	38	193	250	194	159	72	28
LOW	8	1422,1524,1527,1531	4	380	949	853	601	68	32
CORE	92	1529	38	193	250	194	159	72	28
ALL includes all WAAs for which there is documented deer harvest from this community. MAIN includes that group of WAAs from which about 90% of this community's total documented deer harvest has been taken. LOW includes those WAAs included in ALL but not in MAIN. CORE includes those individual WAAs from which 92% or more of this community's total documented deer harvest has been taken. Documented deer harvest statistics are based on ADF&G hunter survey information. 1990 and 2040 HCM results are for the preferred alternative from TLMP 1991.									

WAA Land Use Groupings, Metlakatla Average Deer Harvest (1988-1991) and Habitat Capability Model Results									
Name	Percent of Community Harvest	WAAs	Average Deer Harvest		1990 HCM	2004 HCM	2004 HCM	Percentage WAA Deer Harvest	
			Com	WAAs				Subsistence	Non- Subsist
ALL	100	101,202,303,1210,1211,1214,1316, 1318,1319,1422,1527,1529,1530	34	1730	2660	2539	1887	66	34
MAIN	91	101,202,303,1210,1316,1422,1527, 1529	34	725	1615	1519	1209	57	43
LOW	9	1211,1214,1318,1319,1530	4	1005	1045	1020	678	72	28
CORE	71	202,303,1210	27	46	472	472	396	60	40

ALL includes all WAAs for which there is documented deer harvest from this community.
 MAIN includes that group of WAAs from which about 90% of this community's total documented deer harvest has been taken.
 LOW includes those WAAs included in ALL but not in MAIN.
 CORE includes those individual WAAs from which 10% or more of this community's total documented deer harvest has been taken.
 Documented deer harvest statistics are based on ADF&G hunter survey information.
 1990 and 2040 HCM results are for the preferred alternative from TLMP 1991.

Note: TLMP provides no HCM value for WAA 202, so a value of 0 was used. This obviously makes the overall HCM figures for ALL, MAIN, and CORE minimum values that could well actually be higher.

**WAA Land Use Groupings, Naukati
Average Deer Harvest (1988-1991) and Habitat Capability Model Results**

Name	Percent of Community Harvest	WAA's	Average Deer Harvest		1990 HCM	2004 HCM	2040 HCM	Percentage WAA Deer Harvest	
			Com	WAA's				Subsistence	Non- Subsist
ALL	100	1003,1323,1422,1530,1531	29	761	1380	1284	853	65	35
MAIN	90	1323,1422,1531	104	469	902	826	562	69	31
LOW	10	1003,1530	3	292	478	458	291	59	41
CORE	63	1422	18	301	441	439	258	64	36

ALL includes all WAA's for which there is documented deer harvest from this community.
 MAIN includes that group of WAA's from which about 90% of this community's total documented deer harvest has been taken.
 LOW includes those WAA's included in ALL but not in MAIN.
 CORE includes those individual WAA's from which 62% or more of this community's total documented deer harvest has been taken.
 Documented deer harvest statistics are based on ADF&G hunter survey information.
 1990 and 2040 HCM results are for the preferred alternative from TLMP 1991.

WAA Land Use Groupings, Petersburg Average Deer Harvest (1988-1991) and Habitat Capability Model Results									
Name	Percent of Community Harvest	WAAs	Average Deer Harvest		1990 HCM	2004 HCM	2040 HCM	Percentage WAA Deer Harvest	
			Com	WAAs				Subsistence	Non- Subsist
ALL	100	1003,1315,1318,1319,1323,1420,1421,1422,1524,1525,1526,1527,1528,1529,1530,1531,1601,1602,1603,1605,1706,1707,1901,1904,1905,2007,2008,2926,3001,3308,3309,3310,3311,3312,3313,3315,3523,3525,3551,3731,3732,3733,3734,3835,3938,3939,3940,4041,4055,4145,4146,4147,4148,4149,4253,9999	1114	7944	9695	8957	7346	69	31
MAIN	89	1323,1420,1526,1528,1529,1605,1706,1904,2007,3308,3309,3313,3315,3731,3732,3733,3938,3939,3940,4055,4145,4148,4253	997	3233	3863	3614	3267	71	29
LOW	11	1003,1315,1318,1319,1421,1422,1524,1525,1527,1530,1531,1601,1602,1603,1707,1901,1905,2008,2926,3001,3310,3311,3312,3523,3525,3551,3734,3835,4041,4146,4147,4149,9999	118	4711	5832	5343	4079	67	33
CORE	69	1605,2007,3315,3731,3938,3939,3940	764	1322	1472	1435	1327	81	19
ALL includes all WAAs for which there is documented deer harvest from this community. MAIN includes that group of WAAs from which about 90% of this community's total documented deer harvest has been taken. LOW includes those WAAs included in ALL but not in MAIN. CORE includes those individual WAAs from which 3.5% or more of this community's total documented deer harvest has been taken. Documented deer harvest statistics are based on ADF&G hunter survey information. 1990 and 2040 HCM results are for the preferred alternative from TLMP 1991.									

WAA Land Use Groupings, Point Baker Average Deer Harvest (1988-1991) and Habitat Capability Model Results									
Name	Percent of Community Harvest	WAAs	Average Deer Harvest		1990 HCM	2004 HCM	2040 HCM	Percentage WAA Deer Harvest	
			Com	WAAs				Subsistence	Non- Subsist
ALL	100	1323,1525,1526,1527,1528,1529	19	522	1176	1030	837	78	22
MAIN	87	1526,1528,1529	17	311	560	504	444	77	23
LOW	13	1323,1525,1527,	3	212	611	525	393	80	20
CORE	65	1529	12	193	250	159	159	72	23
ALL includes all WAAs for which there is documented deer harvest from this community. MAIN includes that group of WAAs from which about 90% of this community's total documented deer harvest has been taken. LOW includes those WAAs included in ALL but not in MAIN. CORE includes those individual WAAs from which 64% or more of this community's total documented deer harvest has been taken. Documented deer harvest statistics are based on ADF&G hunter survey information. 1990 and 2040 HCM results are for the preferred alternative from TLMP 1991.									

WAA Land Use Groupings, Port Protection Average Deer Harvest (1988-1991) and Habitat Capability Model Results									
Name	Percent of Community Harvest	WAA's	Average Deer Harvest		1990 HCM	2004 HCM	2040 HCM	Percentage WAA Deer Harvest	
			Com	WAA's				Subsistence	Non- Subsist
ALL	100	1529	4	193	250	194	159	72	28
MAIN	100	1529	4	193	250	194	159	72	28
LOW	100	1529	4	193	250	194	159	72	28
CORE	100	1529	4	193	250	194	159	72	28
ALL includes all WAA's for which there is documented deer harvest from this community. MAIN includes that group of WAA's from which about 90% of this community's total documented deer harvest has been taken. LOW includes those WAA's included in ALL but not in MAIN. CORE includes those individual WAA's from which 100% of this community's total documented deer harvest has been taken. Documented deer harvest statistics are based on ADF&G hunter survey information. 1990 and 2040 HCM results are for the preferred alternative from TLMP 1991.									

WAA Land Use Groupings, Saxman Average Deer Harvest (1988-1991) and Habitat Capability Model Results										
Name	Percent of Community Harvest	WAA's	Average Deer Harvest		1990 HCM	2004 HCM	2040 HCM	Percentage WAA Deer Harvest		
			Com	WAA's				Subsistence	Non- Subsist	
ALL	100	407,408,1211,1315,1319	7	558	949	913	647	58	43	
MAIN	86	408,1315,1319	6	417	617	578	380	72	28	
LOW	14	407,1211	1	141	331	335	267	9	91	
CORE	86	408,1315,1319	6	417	617	578	380	72	28	
ALL includes all WAA's for which there is documented deer harvest from this community. MAIN includes that group of WAA's from which about 90% of this community's total documented deer harvest has been taken. LOW includes those WAA's included in ALL but not in MAIN. CORE includes those individual WAA's from which 24% or more of this community's total documented deer harvest has been taken. Documented deer harvest statistics are based on ADF&G hunter survey information. 1990 and 2040 HCM results are for the preferred alternative from TLMP 1991.										

**WAA Land Use Groupings, Skowl Arm/Polk
Average Deer Harvest (1988-1991) and Habitat Capability Model Results**

Name	Percent of Community Harvest	WAA's	Average Deer Harvest		1990 HCM	2004 HCM	2040 HCM	Percentage WAA Deer Harvest	
			Com	WAA's				Subsistence	Non- Subsist
ALL	100	1212,1214,1317,1529	30	376	671	609	437	59	41
MAIN	88	1214	26	95	175	181	98	45	55
LOW	12	1212,1317,1529	4	281	496	429	340	64	36
CORE	88	1214	26	95	175	181	98	45	55

ALL includes all WAA's for which there is documented deer harvest from this community.

MAIN includes that group of WAA's from which about 90% of this community's total documented deer harvest has been taken.

LOW includes those WAA's included in ALL but not in MAIN.

CORE includes those individual WAA's from which 88% or more of this community's total documented deer harvest has been taken. Documented deer harvest statistics are based on ADF&G hunter survey information.

1990 and 2040 HCM results are for the preferred alternative from TLMP 1991.

WAA Land Use Groupings, Thorne Bay
Average Deer Harvest (1988-1991) and Habitat Capability Model Results

Name	Percent of Community Harvest	WAAs	Average Deer Harvest		1990 HCM	2004 HCM	2040 HCM	Percentage WAA Deer Harvest	
			Com	WAAs				Subsistence	Non-Subsist
ALL	100	510,901,1003,1107,1214,1315,1316,1318,1319,1323,1420,1421,1422,1527,1528,1529,1530,3003,4147,5132	351	2750	4451	3011	3011	68	32
MAIN	90	1214,1315,1316,1318,1319,1420,1421,1422	317	1447	1859	1790	1102	70	30
LOW	10	510,901,1003,1107,1323,1527,1528,1529,1530,3003,4147,5132	34	1303	2592	2429	1909	67	33
CORE	77	1315,1319,1244	269	714	1011	970	591	73	27

ALL includes all WAAs for which there is documented deer harvest from this community.

MAIN includes that group of WAAs from which about 90% of this community's total documented deer harvest has been taken.

LOW includes those WAAs included in ALL but not in MAIN.

CORE includes those individual WAAs from which 11% or more of this community's total documented deer harvest has been taken.

Documented deer harvest statistics are based on ADF&G hunter survey information.

1990 and 2040 HCM results are for the preferred alternative from TLMP 1991.

WAA Land Use Groupings, Whale Pass Average Deer Harvest (1988-1991) and Habitat Capability Model Results									
Name	Percent of Community Harvest	WAAs	Average Deer Harvest		1990 HCM	2004 HCM	2040 HCM	Percentage WAA Deer Harvest	
			Com	WAAs				Subsistence	Non- Subsist
ALL	100	1107,1316,1318,1319,1421,1422, 1529,1527,1528,1529,1530,4148	36	1956	3080	2934	2225	66	34
MAIN	90	1107,1318,1319,1421,1527,1528, 1529,1530	36	1348	2111	1971	1463	74	26
LOW	10	1316,1422,1526,4148	4	609	969	963	762	50	50
CORE	44	1530	18	175	186	174	139	59	41

ALL includes all WAAs for which there is documented deer harvest from this community.
 MAIN includes that group of WAAs from which about 90% of this community's total documented deer harvest has been taken.
 LOW includes those WAAs included in ALL but not in MAIN.
 CORE includes those individual WAAs from which 43% or more of this community's total documented deer harvest has been taken.
 Documented deer harvest statistics are based on ADF&G hunter survey information.
 1990 and 2040 HCM results are for the preferred alternative from TLMP 1991.

WAA Land Use Groupings, Wrangell Average Deer Harvest (1988-1991) and Habitat Capability Model Results									
Name	Percent of Community Harvest	WAAs	Average Deer Harvest		1990 HCM	2004 HCM	2040 HCM	Percentage WAA Deer Harvest	
			Com	WAAs				Subsistence	Non- Subsist
ALL	100	1003,1316,1318,1319,1323,1420, 1421,1422,1525,1526,1528,1529, 1530,1531,1707,1810,1816,1901, 1902,1903,1904,1905,1906,1910, 3001,3002,3308,3311,3312,3314, 3525,3731,3733,3734,3938,3939, 3940,4041,5015	340	5926	7763	7247	5937	80	20
MAIN	89	1319,1526,1528,1529,1530,1810, 1903,1904,1905,1906,1910,3002, 3311,3731,3733,3734,3940	303	2489	3157	3007	2597	87	13
LOW	11	1003,1316,1318,1323,1420,1421, 1422,1526,1531,1707,1816,1901, 1902,3001,3308,3312,3314,3525, 3938,3939,4041,5015	36	3437	4606	4240	3341	75	25
CORE	73	1530,1903,1904,1905,1906,1910, 3733	249	510	1432	1407	1172	83	17
ALL includes all WAAs for which there is documented deer harvest from this community. MAIN includes that group of WAAs from which about 90% of this community's total documented deer harvest has been taken. LOW includes those WAAs included in ALL but not in MAIN. CORE includes those individual WAAs from which XX% or more of this community's total documented deer harvest has been taken. Documented deer harvest statistics are based on ADF&G hunter survey information. 1990 and 2040 HCM results are for the preferred alternative from TLMP 1991.									

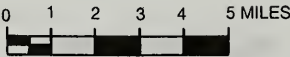
J-4 TRUCs Maps

Wrangell TRUCS Map



LEGEND: AREAS EVER HUNTED FOR DEER

Percent of Households	
gt 25%	gt 5% le 10%
ge 15% lt 25%	gt 1% le 5%
gt 10% le 15%	le 1%



Lab Bay Environmental Impact Study
Tongass Resource Use Cooperative Survey
WRANGELL

Grid is comprised of 7.5' quads from the 1:250,000 Petersburg Quadrangle. Shoreline is from the USFS 1:250,000 mapping, which is consistent with the base maps used in the collection of TRUCS data. The bold polygon outlines delineate areas mapped by two or less households in a given community.

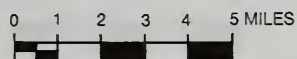
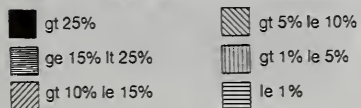
Map Projection: Transverse Mercator
Grid: Alaska Coordinate System 1927, Zone 6101
Datum: NAD 27, Clarke 1866 ellipsoid
Prepared by: Robert C. Wilkinson
LGL Alaska Research Associates
Date: July 14, 1992

Petersburg TRUCS Map



LEGEND: AREAS EVER HUNTED FOR DEER

Percent of Households



Lab Bay Environmental Impact Study
Tongass Resource Use Cooperative Survey
PETERSBURG



Grid is comprised of 7.5' quads from the 1:250,000 Petersburg Quadrangle. Shoreline is from the USFS 1:250,000 mapping, which is consistent with the base maps used in the collection of TRUCS data. The bold polygon outlines delineate areas mapped by two or less households in a given community.







Map Projection: Transverse Mercator
Grid: Alaska Coordinate System 1927, Zone 6101
Datum: NAD 27, Clarke 1866 ellipsoid
Prepared by: Robert C. Wilkinson
LGL Alaska Research Associates
Date: July 14, 1992

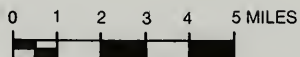
Coffman Cove TRUCS Map



LEGEND: AREAS EVER HUNTED FOR DEER

Percent of Households

 gt 25%	 gt 5% le 10%
 ge 15% lt 25%	 gt 1% le 5%
 gt 10% le 15%	 le 1%



Lab Bay Environmental Impact Study
Tongass Resource Use Cooperative Survey

COFFMAN COVE

Grid is comprised of 7.5' quads from the 1:250,000 Petersburg Quadrangle. Shoreline is from the USFS 1:250,000 mapping, which is consistent with the base maps used in the collection of TRUCS data. The bold polygon outlines delineate areas mapped by two or less households in a given community.

Map Projection: Transverse Mercator
Grid: Alaska Coordinate System 1927, Zone 6101
Datum: NAD 27, Clarke 1866 ellipsoid
Prepared by: Robert C. Wilkinson
LGL Alaska Research Associates
Date: July 14, 1992

J-5 Deer Harvest Statistics

DETAILED DEER HARVEST STATISTICS
LAB BAY STUDY AREA
BY COMMUNITY, YEAR, AND WAA

Based on Alaska Department of Fish and Game
Annual Hunter Survey Information, 1987-1991

ANNUAL REPORT OF THE
DEER HUNTING AND
HARVEST STATISTICS
FOR THE YEAR 1970

DEPARTMENT OF AGRICULTURE
WASHINGTON, D. C.

Table Coffman1987

Coffman Cove Deer Harvest for 1987, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1319	2Z	15	9.15	285	5.26
1420	2Z	73	44.51	220	33.18
1421	2Z	42	25.61	539	7.79
1422	2Z	19	11.59	495	3.84
1527	2Z	15	9.15	416	3.61
Totals		164	100.01		

Table Coffman1988

Coffman Cove Deer Harvest for 1988, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1315	2Z	2	1.69	130	1.54
1319	2Z	2	1.69	242	0.83
1420	2Z	42	35.59	185	22.70
1421	2Z	38	32.20	329	11.55
1422	2Z	2	1.69	286	0.70
1527	2Z	2	1.69	43	4.65
1528	2Z	4	3.39	63	6.35
1530	2Z	9	7.63	201	4.48
1906	3Z	13	11.02	37	35.14
9999	NA	4	3.39	50	8.00
Totals		118	99.98		

Table Coffman1989

Coffman Cove Deer Harvest for 1989, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1108	2Z	6	4.76	6	100.00
1420	2Z	27	21.43	115	23.48
1421	2Z	48	38.10	224	21.43
1422	2Z	6	4.76	375	1.60
1527	2Z	6	4.76	12	50.00
1530	2Z	33	26.19	196	16.84
		126	100.00		

Table Coffman1990

Coffman Cove Deer Harvest for 1990, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
408	1A	2	1.80	68	2.94
1420	2Z	54	48.65	144	37.50
1421	2Z	30	27.03	118	25.42
1530	2Z	23	20.72	215	10.70
1906	3Z	2	1.80	18	11.11
		111	100.00		

Table Coffman1991

Coffman Cove Deer Harvest for 1991, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1420	2Z	22	30.99	38	57.89
1421	2Z	41	57.75	172	23.84
1422	2Z	4	5.63	237	1.69
1527	2Z	4	5.63	57	7.02
		71.00	100.00		

Table Craig1987

Craig Deer Harvest for 1987, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
901	2Z	7	0.92	52	13.46
902	2Z	7	0.92	7	100.00
1003	2Z	13	1.71	93	13.98
1107	2Z	20	2.63	43	46.51
1214	2Z	7	0.92	90	7.78
1315	2Z	7	0.92	235	2.98
1316	2Z	13	1.71	140	9.29
1317	2Z	53	6.96	122	43.44
1318	2Z	300	39.42	494	60.73
1319	2Z	33	4.34	285	11.58
1421	2Z	67	8.80	539	12.43
1422	2Z	127	16.69	495	25.66
1526	2Z	20	2.63	67	29.85
1527	2Z	20	2.63	416	4.81
1529	2Z	67	8.80	295	22.71
Totals		761	100.00		

Table Craig1988

Craig Deer Harvest for 1988, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
901	2Z	35	5.86	40	87.50
1003	2Z	26	4.36	126	20.63
1107	2Z	9	1.51	49	18.37
1316	2Z	26	4.36	77	33.77
1317	2Z	9	1.51	28	32.14
1318	2Z	149	24.96	346	43.06
1319	2Z	70	11.73	242	28.93
1321	2Z	18	3.02	76	23.68
1421	2Z	79	13.23	329	24.01
1422	2Z	70	11.73	286	24.48
1527	2Z	9	1.51	43	20.93
1528	2Z	9	1.51	63	14.29
1529	2Z	44	7.37	146	30.14
1530	2Z	26	4.36	201	12.94
1531	2Z	18	3.02	40	45.00
Totals		597	100.04		

Table Craig1989

Craig Deer Harvest for 1989, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
408	1A	7	1.23	58	12.07
901	2Z	7	1.23	18	38.89
902	2Z	13	2.28	20	65.00
1003	2Z	60	10.53	128	46.88
1315	2Z	7	1.23	92	7.61
1316	2Z	20	3.51	65	30.77
1317	2Z	60	10.53	74	81.08
1318	2Z	168	29.47	399	42.11
1319	2Z	7	1.23	195	3.59
1323	2Z	27	4.74	93	29.03
1332	2Z	7	1.23	23	30.43
1421	2Z	20	3.51	224	8.93
1422	2Z	134	23.51	375	35.73
1526	2Z	13	2.28	110	11.82
1529	2Z	13	2.28	157	8.28
1531	2Z	7	1.23	46	15.22
Totals		570	100.02		

Table Craig1990

Craig Deer Harvest for 1990, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
901	2Z	6	0.95	19	31.58
902	2Z	19	3.00	28	67.86
1003	2Z	19	3.00	82	23.17
1105	2Z	6	0.95	6	100.00
1214	2Z	6	0.95	124	4.84
1315	2Z	6	0.95	144	4.17
1316	2Z	13	2.05	31	41.94
1317	2Z	13	2.05	79	16.46
1318	2Z	248	39.12	429	57.81
1319	2Z	83	13.09	426	19.48
1323	2Z	45	7.10	101	44.55
1332	2Z	38	5.99	62	61.29
1422	2Z	51	8.04	307	16.61
1525	2Z	25	3.94	59	42.37
1529	2Z	25	3.94	310	8.06
1530	2Z	6	0.95	215	2.79
1531	2Z	25	3.94	52	48.08
Totals		634.00	100.01		

Table Craig1991

Craig Deer Harvest for 1991, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest From Community
1003	2Z	50	10.48	131	38.17
1214	2Z	7	1.47	83	8.43
1317	2Z	7	1.47	59	11.86
1318	2Z	150	31.45	258	58.14
1319	2Z	21	4.40	345	6.09
1323	2Z	57	11.95	238	23.95
1332	2Z	21	4.40	40	52.50
1421	2Z	7	1.47	172	4.07
1422	2Z	79	16.56	237	33.33
1525	2Z	14	2.94	68	20.59
1529	2Z	64	13.42	157	40.76
		477.00	100.01		

Table Hollis1987

Hollis Deer Harvest for 1987, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1003	2Z	4	4.55	93	4.30
1317	2Z	16	18.18	122	13.11
1318	2Z	12	13.64	494	2.43
1319	2Z	4	4.55	285	1.40
1420	2Z	20	22.73	220	9.09
1421	2Z	24	27.27	539	4.45
1422	2Z	4	4.55	495	0.81
1527	2Z	4	4.55	416	0.96
Totals		88.00	100.02		

Table Hollis1988

Hollis Deer Harvest for 1988, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1211	2Z	8	32.00	79	10.13
1317	2Z	8	32.00	28	28.57
1318	2Z	3	12.00	346	0.87
1421	2Z	3	12.00	329	0.91
1422	2Z	3	12.00	286	1.05
Totals		25.00	100.00		

Table Hollis1989

Hollis Deer Harvest for 1989, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1316	2Z	3	50.00	65	4.62
1317	2Z	2	33.33	74	2.70
1530	2Z	1	16.67	196	0.51
Totals		6	100.00		

Table Hollis1989

Hollis Deer Harvest for 1989, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
902	2Z	2	5.71	28	7.14
1315	2Z	10	28.57	144	6.94
1316	2Z	2	5.71	31	6.45
1317	2Z	10	28.57	79	12.66
1318	2Z	3	8.57	429	0.70
1529	2Z	5	14.29	310	1.61
1530	2Z	3	8.57	215	1.40
Totals		35	99.99		

Table Hollis1991

Hollis Deer Harvest for 1991, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1214	2Z	1	5.88	83	1.20
1316	2Z	4	23.53	47	8.51
1317	2Z	8	47.06	59	13.56
1421	2Z	3	17.65	172	1.74
1530	2Z	1	5.88	87	1.15
		17.00	100.00		

Table Hydaburg1987

Hydaburg Deer Harvest for 1987, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
901	2Z	10	8.93	52	19.23
1106	2Z	5	4.46	45	11.11
1107	2Z	5	4.46	43	11.63
1316	2Z	10	8.93	140	7.14
1317	2Z	10	8.93	122	8.20
1318	2Z	31	27.68	494	6.28
1319	2Z	41	36.61	285	14.39
Totals		112	100.00		

Table Hydaburg1988

Hydaburg Deer Harvest for 1988, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
901	2Z	5	8.93	40	12.50
1107	2Z	9	16.07	49	18.37
1319	2Z	5	8.93	242	2.07
1320	2Z	9	16.07	20	45.00
1420	2Z	18	32.14	185	9.73
1421	2Z	5	8.93	329	1.52
1422	2Z	5	8.93	286	1.75
Totals		56	100.00		

Table Hydaburg1989

Hydaburg Deer Harvest for 1989, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
901	2Z	4	13.33	18	22.22
1107	2Z	4	13.33	49	8.16
1317	2Z	2	6.67	74	2.70
1318	2Z	4	13.33	399	1.00
1323	2Z	4	13.33	93	4.30
1332	2Z	4	13.33	23	17.39
1421	2Z	4	13.33	224	1.79
1422	2Z	4	13.33	375	1.07
Totals		30	99.98		

Table Hydaburg1990

Hydaburg Deer Harvest for 1990, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1107	2Z	10	21.28	12	83.33
1319	2Z	3	6.38	426	0.70
1323	2Z	3	6.38	101	2.97
1332	2Z	17	36.17	62	27.42
1422	2Z	3	6.38	307	0.98
1529	2Z	3	6.38	310	0.97
1529	2Z	3	6.38	310	0.97
1421	2Z	2	4.26	224	0.89
1422	2Z	3	6.38	307	0.98
Totals		47.00	99.99		

Table Hydaburg1991

Hydaburg Deer Harvest for 1991, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
901	2Z	14	50.00	50	28.00
1332	2Z	14	50.00	40	35.00
		28.00	100.00		

Table Juneau1987

Juneau Deer Harvest for 1987, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1212	2Z	5	0.10	31	16.13
1315	2Z	5	0.10	235	2.13
1318	2Z	10	0.20	494	2.02
1421	2Z	15	0.30	539	2.78
1527	2Z	5	0.10	416	1.20
2305	1C	5	0.10	9	55.56
2517	1C	20	0.40	20	100.00
2620	1C	39	0.78	39	100.00
2621	1C	73	1.46	73	100.00
2722	1C	376	7.52	380	98.95
3001	4Z	49	0.98	1248	3.93
3003	4Z	15	0.30	531	2.82
3104	4Z	15	0.30	585	2.56
3105	4Z	10	0.20	383	2.61
3308	4Z	54	1.08	361	14.96
3309	4Z	15	0.30	190	7.89
3310	4Z	34	0.68	402	8.46
3417	4Z	122	2.44	379	32.19
3418	4Z	49	0.98	123	39.84
3419	4Z	39	0.78	202	19.31
3420	4Z	112	2.24	173	64.74
3521	4Z	29	0.58	121	23.97
3522	4Z	63	1.26	284	22.18
3523	4Z	420	8.40	1066	39.40
3524	4Z	102	2.04	261	39.08
3625	4Z	254	5.08	535	47.48
3626	4Z	166	3.32	252	65.87
3627	4Z	44	0.88	46	95.65
3628	4Z	20	0.40	42	47.62
3629	4Z	224	4.48	416	53.85
3630	4Z	44	0.88	100	44.00
3731	4Z	15	0.30	131	11.45
3732	4Z	15	0.30	20	75.00
3835	4Z	400	8.00	435	91.95

Table Juneau1987 (Continued)

Juneau Deer Harvest for 1987, by WAA

3836	4Z	468	9.36	478	97.91
3837	4Z	39	0.78	39	100.00
3938	4Z	83	1.66	264	31.44
3939	4Z	39	0.78	405	9.63
3940	4Z	20	0.40	225	8.89
4041	4Z	98	1.96	282	34.75
4042	4Z	34	0.68	295	11.53
4043	4Z	117	2.34	161	72.67
4044	4Z	107	2.14	107	100.00
4145	4Z	117	2.34	146	80.14
4146	4Z	146	2.92	240	60.83
4147	4Z	566	11.32	595	95.13
4148	4Z	302	6.04	311	97.11
		4,999.00	99.98		

Table Juneau1988

Juneau Deer Harvest for 1988, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1530	2Z	6	0.15	201	2.99
2202	1C	13	0.33	18	72.22
2305	1C	6	0.15	6	100.00
2620	1C	25	0.63	25	100.00
2621	1C	31	0.78	36	86.11
2722	1C	313	7.83	318	98.43
2824	1C	13	0.33	13	100.00
3001	4Z	25	0.63	1028	2.43
3002	4Z	13	0.33	592	2.20
3104	4Z	13	0.33	561	2.32
3308	4Z	50	1.25	186	26.88
3309	4Z	25	0.63	161	15.53
3310	4Z	19	0.48	272	6.99
3315	4Z	6	0.15	184	3.26
3416	4Z	19	0.48	149	12.75
3417	4Z	119	2.98	267	44.57
3419	4Z	31	0.78	100	31.00
3420	4Z	50	1.25	103	48.54
3421	4Z	75	1.88	98	76.53
3521	4Z	44	1.10	106	41.51
3522	4Z	56	1.40	155	36.13
3523	4Z	44	1.10	185	23.78
3524	4Z	125	3.13	443	28.22
3525	4Z	182	4.55	365	49.86
3531	4Z	50	1.25	145	34.48
3532	4Z	38	0.95	316	12.03
3626	4Z	157	3.93	220	71.36
3627	4Z	75	1.88	111	67.57
3628	4Z	44	1.10	71	61.97
3629	4Z	150	3.75	232	64.66
3630	4Z	6	0.15	31	19.35
3731	4Z	25	0.63	440	5.68
3734	4Z	6	0.15	87	6.90
3835	4Z	257	6.43	274	93.80

Table Juneau1988 (Continued)

Juneau Deer Harvest for 1988, by WAA

3836	4Z	370	9.25	374	98.93
3837	4Z	63	1.58	63	100.00
3938	4Z	119	2.98	298	39.93
3939	4Z	31	0.78	421	7.36
3940	4Z	38	0.95	204	18.63
4042	4Z	31	0.78	134	23.13
4043	4Z	82	2.05	92	89.13
4044	4Z	88	2.20	111	79.28
4045	4Z	63	1.58	82	76.83
4046	4Z	31	0.78	116	26.72
4145	4Z	100	2.50	100	100.00
4146	4Z	119	2.98	134	88.81
4147	4Z	125	3.13	125	100.00
4148	4Z	100	2.50	112	89.29
4149	4Z	132	3.30	141	93.62
4150	4Z	389	9.73	391	99.49
5135	4Z	6	0.15	6	100.00
		<u>3,998.00</u>	<u>100.09</u>		

Table Juneau1989

Juneau Deer Harvest for 1989, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1332	2Z	5	0.13	23	21.74
1420	2Z	5	0.13	115	4.35
1422	2Z	5	0.13	375	1.33
2305	1C	5	0.13	5	100.00
2517	1C	10	0.27	10	100.00
2620	1C	20	0.53	20	100.00
2621	1C	100	2.66	104	96.15
2722	1C	296	7.87	321	92.21
2825	1C	5	0.13	5	100.00
3002	4Z	15	0.40	638	2.35
3003	4Z	10	0.27	458	2.18
3105	4Z	25	0.66	78	32.05
3308	4Z	50	1.33	187	26.74
3309	4Z	5	0.13	195	2.56
3310	4Z	5	0.13	365	1.37
3311	4Z	5	0.13	306	1.63
3312	4Z	5	0.13	154	3.25
3313	4Z	25	0.66	187	13.37
3315	4Z	5	0.13	216	2.31
3417	4Z	55	1.46	248	22.18
3418	4Z	40	1.06	91	43.96
3419	4Z	5	0.13	102	4.90
3420	4Z	60	1.60	99	60.61
3421	4Z	20	0.53	109	18.35
3523	4Z	10	0.27	156	6.41
3524	4Z	65	1.73	289	22.49
3525	4Z	160	4.25	289	55.36
3526	4Z	196	5.21	286	68.53
3551	4Z	75	1.99	307	24.43
3627	4Z	65	1.73	95	68.42
3628	4Z	10	0.27	10	100.00
3629	4Z	110	2.92	174	63.22
3630	4Z	15	0.40	40	37.50
3731	4Z	5	0.13	107	4.67

Table Juneau1989 (Continued)

Juneau Deer Harvest for 1989, by WAA

3732	4Z	20	0.53	68	29.41
3734	4Z	35	0.93	152	23.03
3835	4Z	211	5.61	222	95.05
3836	4Z	286	7.60	299	95.65
3837	4Z	85	2.26	89	95.51
3938	4Z	110	2.92	225	48.89
3939	4Z	45	1.20	342	13.16
3940	4Z	10	0.27	157	6.37
4041	4Z	15	0.40	43	34.88
4042	4Z	10	0.27	79	12.66
4043	4Z	25	0.66	42	59.52
4044	4Z	110	2.92	199	55.28
4054	4Z	5	0.13	12	41.67
4055	4Z	15	0.40	75	20.00
4145	4Z	160	4.25	188	85.11
4146	4Z	75	1.99	75	100.00
4147	4Z	170	4.52	170	100.00
4148	4Z	241	6.41	264	91.29
4149	4Z	165	4.39	206	80.10
4150	4Z	281	7.47	291	96.56
4222	4Z	65	1.73	257	25.29
4252	4Z	60	1.60	373	16.09
4253	4Z	35	0.93	200	17.50
4256	4Z	25	0.66	105	23.81
4302	1D	10	0.27	10	100.00
		3,761.00	99.95		

Table Juneau1990

Juneau Deer Harvest for 1990, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
202	1A	6	0.14	18	33.33
1106	2Z	6	0.14	127	4.72
1317	2Z	11	0.26	79	13.92
1420	2Z	6	0.14	144	4.17
2517	1C	28	0.66	40	70.00
2620	1C	11	0.26	11	100.00
2621	1C	51	1.21	51	100.00
2722	1C	324	7.69	326	99.39
2824	1C	6	0.14	6	100.00
3001	4Z	11	0.26	783	1.40
3002	4Z	11	0.26	585	1.88
3003	4Z	17	0.40	319	5.33
3104	4Z	34	0.81	236	14.41
3308	4Z	62	1.47	160	38.75
3309	4Z	74	1.76	371	19.95
3310	4Z	40	0.95	370	10.81
3312	4Z	6	0.14	205	2.93
3314	4Z	23	0.55	230	10.00
3315	4Z	40	0.95	274	14.60
3417	4Z	142	3.37	240	59.17
3419	4Z	17	0.40	126	13.49
3420	4Z	62	1.47	81	76.54
3523	4Z	23	0.55	242	9.50
3524	4Z	34	0.81	220	15.45
3525	4Z	125	2.97	316	39.56
3526	4Z	290	6.88	355	81.69
3551	4Z	97	2.30	263	36.88
3627	4Z	40	0.95	76	52.63
3628	4Z	23	0.55	33	69.70
3629	4Z	68	1.61	127	53.54
3630	4Z	6	0.14	39	15.38
3734	4Z	6	0.14	188	3.19
3835	4Z	330	7.83	339	97.35
3836	4Z	267	6.34	297	89.90

Table Juneau1990 (Continued)

Juneau Deer Harvest for 1990, by WAA

3837	4Z	97	2.30	102	95.10
3938	4Z	205	4.87	445	46.07
3939	4Z	68	1.61	420	16.19
4041	4Z	11	0.26	64	17.19
4042	4Z	6	0.14	80	7.50
4043	4Z	34	0.81	43	79.07
4044	4Z	176	4.18	294	59.86
4055	4Z	57	1.35	183	31.15
4145	4Z	222	5.27	249	89.16
4146	4Z	102	2.42	120	85.00
4147	4Z	148	3.51	195	75.90
4148	4Z	114	2.71	166	68.67
4149	4Z	187	4.44	200	93.50
4150	4Z	227	5.39	281	80.78
4222	4Z	159	3.77	490	32.45
4252	4Z	57	1.35	267	21.35
4253	4Z	17	0.40	166	10.24
4256	4Z	23	0.55	97	23.71
5138	4Z	6	0.14	6	100.00
		4,213.00	99.97		

Table Juneau1991

Juneau Deer Harvest for 1991, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1421	2Z	30	1.04	172	17.44
2306	1C	6	0.21	12	50.00
2517	1C	6	0.21	6	100.00
2620	1C	42	1.46	42	100.00
2621	1C	67	2.33	67	100.00
2722	1C	243	8.46	264	92.05
3001	4Z	6	0.21	276	2.17
3308	4Z	97	3.38	165	58.79
3309	4Z	6	0.21	41	14.63
3310	4Z	12	0.42	46	26.09
3315	4Z	18	0.63	47	38.30
3417	4Z	61	2.12	124	49.19
3420	4Z	55	1.92	57	96.49
3421	4Z	42	1.46	58	72.41
3523	4Z	55	1.92	78	70.51
3524	4Z	24	0.84	64	37.50
3525	4Z	55	1.92	82	67.07
3526	4Z	79	2.75	92	85.87
3551	4Z	91	3.17	172	52.91
3627	4Z	49	1.71	74	66.22
3629	4Z	55	1.92	75	73.33
3630	4Z	12	0.42	19	63.16
3734	4Z	42	1.46	111	37.84
3835	4Z	388	13.51	409	94.87
3836	4Z	134	4.67	160	83.75
3837	4Z	18	0.63	22	81.82
3938	4Z	55	1.92	139	39.57
3940	4Z	18	0.63	171	10.53
4043	4Z	30	1.04	38	78.95
4044	4Z	121	4.21	262	46.18
4055	4Z	61	2.12	73	83.56
4145	4Z	158	5.50	169	93.49
4146	4Z	79	2.75	79	100.00
4147	4Z	146	5.09	162	90.12
4148	4Z	152	5.29	165	92.12

Table Juneau1991 (Continued)

Juneau Deer Harvest for 1991, by WAA

4149	4Z	140	4.88	142	98.59
4150	4Z	170	5.92	172	98.84
4222	4Z	18	0.63	69	26.09
4252	4Z	6	0.21	182	3.30
4253	4Z	18	0.63	91	19.78
4256	4Z	6	0.21	22	27.27
		2,871.00	100.01		

Table Ketchikan1987

Ketchikan Deer Harvest for 1987, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
101	1A	71	3.54	71	100.00
404	1A	29	1.45	35	82.86
405	1A	6	0.30	12	50.00
406	1A	53	2.64	71	74.65
407	1A	76	3.79	76	100.00
509	1A	65	3.24	66	98.48
510	1A	6	0.30	7	85.71
612	1A	71	3.54	71	100.00
613	1A	135	6.73	146	92.47
614	1A	6	0.30	8	75.00
715	1A	12	0.60	13	92.31
821	1A	12	0.60	12	100.00
823	1A	6	0.30	6	100.00
1003	2Z	41	2.04	93	44.09
1106	2Z	12	0.60	45	26.67
1107	2Z	18	0.90	43	41.86
1108	2Z	6	0.30	6	100.00
1210	2Z	35	1.75	35	100.00
1211	2Z	35	1.75	58	60.34
1212	2Z	18	0.90	31	58.06
1214	2Z	47	2.34	90	52.22
1315	2Z	82	4.09	235	34.89
1316	2Z	18	0.90	140	12.86
1317	2Z	35	1.75	122	28.69
1318	2Z	47	2.34	494	9.51
1319	2Z	35	1.75	285	12.28
1420	2Z	53	2.64	220	24.09
1421	2Z	247	12.32	539	45.83
1422	2Z	200	9.98	495	40.40
1525	2Z	6	0.30	46	13.04
1526	2Z	12	0.60	67	17.91
1527	2Z	176	8.78	416	42.31
1528	2Z	29	1.45	72	40.28
1529	2Z	65	3.24	295	22.03

Table Ketchikan1987 (Continued)

Ketchikan Deer Harvest for 1987, by WAA

1817	1B	29	1.45	31	93.55
3001	4Z	41	2.04	1248	3.29
3308	4Z	6	0.30	361	1.66
3313	4Z	24	1.20	217	11.06
3315	4Z	63	3.14	218	28.90
3523	4Z	12	0.60	1066	1.13
3625	4Z	6	0.30	535	1.12
3835	4Z	29	1.45	435	6.67
4043	4Z	18	0.90	161	11.18
4147	4Z	6	0.30	595	1.01
9999	NA	6	0.30	216	2.78
		2,005.00	100.03		

Table Ketchikan1988

Ketchikan Deer Harvest for 1988, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
101	1A	130	7.93	135	96.30
404	1A	13	0.79	13	100.00
405	1A	26	1.59	26	100.00
406	1A	104	6.34	104	100.00
407	1A	104	6.34	104	100.00
408	1A	72	4.39	72	100.00
509	1A	59	3.60	59	100.00
612	1A	46	2.80	62	74.19
613	1A	59	3.60	62	95.16
1003	2Z	65	3.96	126	51.59
1106	2Z	20	1.22	38	52.63
1107	2Z	13	0.79	49	26.53
1210	2Z	13	0.79	13	100.00
1211	2Z	59	3.60	79	74.68
1212	2Z	20	1.22	20	100.00
1214	2Z	46	2.80	93	49.46
1315	2Z	33	2.01	130	25.38
1316	2Z	46	2.80	77	59.74
1318	2Z	39	2.38	346	11.27
1319	2Z	39	2.38	242	16.12
1321	2Z	7	0.43	76	9.21
1420	2Z	104	6.34	185	56.22
1421	2Z	169	10.30	329	51.37
1422	2Z	98	5.98	286	34.27
1526	2Z	20	1.22	115	17.39
1530	2Z	91	5.55	201	45.27
1817	1B	20	1.22	25	80.00
3001	4Z	20	1.22	1028	1.95
3104	4Z	7	0.43	561	1.25
3311	4Z	13	0.79	330	3.94
3315	4Z	39	2.38	184	21.20
3418	4Z	13	0.79	78	16.67
3524	4Z	7	0.43	443	1.58
3731	4Z	13	0.79	440	2.95
3938	4Z	13	0.79	298	4.36
		1,640.00	99.99		

Table Ketchikan1989

Ketchikan Deer Harvest for 1989, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
101	1A	101	6.54	101	100.00
202	1A	10	0.65	32	31.25
405	1A	15	0.97	15	100.00
406	1A	20	1.30	39	51.28
407	1A	46	2.98	46	100.00
408	1A	46	2.98	58	79.31
509	1A	56	3.63	56	100.00
510	1A	25	1.62	56	44.64
612	1A	76	4.92	76	100.00
613	1A	91	5.89	91	100.00
614	1A	10	0.65	17	58.82
901	2Z	5	0.32	18	27.78
1003	2Z	35	2.27	128	27.34
1105	2Z	5	0.32	5	100.00
1107	2Z	25	1.62	49	51.02
1210	2Z	20	1.30	20	100.00
1211	2Z	116	7.51	132	87.88
1212	2Z	46	2.98	46	100.00
1213	2Z	10	0.65	10	100.00
1214	2Z	51	3.30	81	62.96
1315	2Z	25	1.62	92	27.17
1316	2Z	30	1.94	65	46.15
1317	2Z	10	0.65	74	13.51
1318	2Z	51	3.30	399	12.78
1319	2Z	35	2.27	195	17.95
1323	2Z	25	1.62	93	26.88
1420	2Z	71	4.60	115	61.74
1421	2Z	101	6.54	224	45.09
1422	2Z	116	7.51	375	30.93
1525	2Z	5	0.32	24	20.83
1526	2Z	25	1.62	110	22.73
1529	2Z	20	1.30	157	12.74
1530	2Z	51	3.30	196	26.02
1707	1B	5	0.32	5	100.00

Table Ketchikan1989 (Continued)

Ketchikan Deer Harvest for 1989, by WAA

1817	1B	10	0.65	13	76.92
1901	3Z	15	0.97	15	100.00
2722	1C	20	1.30	321	6.23
3002	4Z	20	1.30	638	3.13
3308	4Z	20	1.30	187	10.70
3313	4Z	10	0.65	187	5.35
3314	4Z	10	0.65	135	7.41
3629	4Z	10	0.65	174	5.75
3731	4Z	15	0.97	107	14.02
3835	4Z	5	0.32	222	2.25
3836	4Z	5	0.32	299	1.67
4043	4Z	10	0.65	42	23.81
4145	4Z	10	0.65	188	5.32
4222	4Z	5	0.32	257	1.95
		1,544.00	100.01		

Table Ketchikan1990

Ketchikan Deer Harvest for 1990, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
101	1A	99	5.70	101	98.02
404	1A	14	0.81	14	100.00
405	1A	21	1.21	21	100.00
406	1A	71	4.09	71	100.00
407	1A	85	4.89	85	100.00
408	1A	49	2.82	68	72.06
509	1A	49	2.82	49	100.00
510	1A	49	2.82	53	92.45
612	1A	35	2.01	35	100.00
613	1A	183	10.53	183	100.00
614	1A	14	0.81	17	82.35
901	2Z	7	0.40	19	36.84
902	2Z	7	0.40	28	25.00
1003	2Z	28	1.61	82	34.15
1106	2Z	85	4.89	127	66.93
1108	2Z	21	1.21	21	100.00
1211	2Z	35	2.01	44	79.55
1212	2Z	7	0.40	7	100.00
1213	2Z	28	1.61	31	90.32
1214	2Z	71	4.09	124	57.26
1315	2Z	21	1.21	144	14.58
1317	2Z	21	1.21	79	26.58
1318	2Z	7	0.40	429	1.63
1319	2Z	28	1.61	426	6.57
1323	2Z	21	1.21	101	20.79
1332	2Z	7	0.40	62	11.29
1420	2Z	42	2.42	144	29.17
1421	2Z	49	2.82	118	41.53
1422	2Z	120	6.90	307	39.09
1527	2Z	7	0.40	27	25.93
1528	2Z	7	0.40	33	21.21
1529	2Z	127	7.31	310	40.97
1530	2Z	71	4.09	215	33.02
1531	2Z	7	0.40	52	13.46

Table Ketchikan1990 (Continued)
Ketchikan Deer Harvest for 1990, by WAA

1817	1B	14	0.81	14	100.00
1901	3Z	7	0.40	23	30.43
1910	3Z	14	0.81	30	46.67
3002	4Z	7	0.40	585	1.20
3308	4Z	21	1.21	160	13.13
3315	4Z	49	2.82	274	17.88
3525	4Z	21	1.21	316	6.65
3627	4Z	14	0.81	76	18.42
3630	4Z	7	0.40	39	17.95
3731	4Z	14	0.81	154	9.09
3938	4Z	7	0.40	445	1.57
3940	4Z	42	2.42	557	7.54
4043	4Z	7	0.40	43	16.28
4150	4Z	21	1.21	281	7.47
		1,738.00	100.02		

Table Ketchikan1991

Ketchikan Deer Harvest for 1991, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
101	1A	46	3.87	46	100.00
404	1A	8	0.67	8	100.00
405	1A	31	2.61	31	100.00
406	1A	38	3.20	38	100.00
407	1A	38	3.20	40	95.00
408	1A	31	2.61	31	100.00
509	1A	31	2.61	31	100.00
510	1A	23	1.93	46	50.00
612	1A	31	2.61	34	91.18
613	1A	15	1.26	15	100.00
614	1A	8	0.67	10	80.00
901	2Z	31	2.61	50	62.00
1003	2Z	61	5.13	131	46.56
1106	2Z	23	1.93	59	38.98
1107	2Z	8	0.67	8	100.00
1209	2Z	8	0.67	8	100.00
1211	2Z	31	2.61	35	88.57
1212	2Z	15	1.26	41	36.59
1214	2Z	38	3.20	83	45.78
1315	2Z	23	1.93	144	15.97
1316	2Z	38	3.20	47	80.85
1317	2Z	31	2.61	59	52.54
1318	2Z	8	0.67	258	3.10
1319	2Z	115	9.67	345	33.33
1323	2Z	69	5.80	238	28.99
1421	2Z	61	5.13	172	35.47
1422	2Z	76	6.39	237	32.07
1527	2Z	31	2.61	57	54.39
1529	2Z	61	5.13	157	38.85
1530	2Z	61	5.13	87	70.11
1531	2Z	8	0.67	26	30.77
1817	1B	8	0.67	8	100.00
1910	3Z	31	2.61	49	63.27
3309	4Z	15	1.26	41	36.59
3311	4Z	15	1.26	56	26.79
3938	4Z	15	1.26	139	10.79
4043	4Z	8	0.67	38	21.05
		1,189.00	99.99		

Table Klawock1987

Klawock Deer Harvest for 1987, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
901	2Z	33	10.54	52	63.46
1003	2Z	16	5.11	93	17.20
1317	2Z	8	2.56	122	6.56
1318	2Z	74	23.64	494	14.98
1319	2Z	33	10.54	285	11.58
1420	2Z	25	7.99	220	11.36
1421	2Z	58	18.53	539	10.76
1422	2Z	58	18.53	495	11.72
1529	2Z	8	2.56	295	2.71
Totals		313.00	100.00		

Table Klawock1988

Klawock Deer Harvest for 1988, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
902	2Z	11	4.40	11	100.00
1317	2Z	11	4.40	28	39.29
1318	2Z	126	50.40	346	36.42
1320	2Z	11	4.40	20	55.00
1321	2Z	46	18.40	76	60.53
1421	2Z	11	4.40	329	3.34
1422	2Z	23	9.20	286	8.04
1527	2Z	11	4.40	43	25.58
Totals		250.00	100.00		

Table Klawock1989

Klawock Deer Harvest for 1989, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
902	2Z	7	2.93	20	35.00
1107	2Z	7	2.93	49	14.29
1318	2Z	113	47.28	399	28.32
1319	2Z	7	2.93	195	3.59
1323	2Z	7	2.93	93	7.53
1332	2Z	7	2.93	23	30.43
1421	2Z	14	5.86	224	6.25
1422	2Z	28	11.72	375	7.47
1528	2Z	21	8.79	51	41.18
1529	2Z	28	11.72	157	17.83
Totals		239.00	100.02		

Table Klawock1990

Klawock Deer Harvest for 1990, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1317	2Z	18	6.10	79	22.78
1318	2Z	151	51.19	429	35.20
1319	2Z	36	12.20	426	8.45
1323	2Z	9	3.05	101	8.91
1422	2Z	36	12.20	307	11.73
1527	2Z	9	3.05	27	33.33
1529	2Z	36	12.20	310	11.61
Totals		295.00	99.99		

Table Klawock1991

Klowock Deer Harvest for 1991, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1003	2Z	9	2.46	131	6.87
1315	2Z	19	5.19	144	13.19
1318	2Z	85	23.22	258	32.95
1318	2Z	57	15.57	345	16.52
1323	2Z	75	20.49	238	31.51
1421	2Z	19	5.19	172	11.05
1422	2Z	47	12.84	237	19.83
1526	2Z	9	2.46	51	17.65
1527	2Z	19	5.19	57	33.33
3526	4Z	9	2.46	92	9.78
3627	4Z	9	2.46	74	12.16
3629	4Z	9	2.46	75	12.00
		366.00	99.99		

Table Labouchere Bay1987

Labouchere Bay Deer Harvest for 1987, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1422	2Z	8	11.43	495	1.62
1527	2Z	8	11.43	416	1.92
1528	2Z	8	11.43	72	11.11
1529	2Z	46	65.71	295	15.59
Totals	70.00	100.00			

Table Labouchere Bay1988

Labouchere Bay Deer Harvest for 1988, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1529	2Z	24	100	146	16.44

Table Labouchere Bay1989

Labouchere Bay Deer Harvest for 1989, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1527	2Z	8	2.04	12	8.33
1528	2Z	47	95.92	157	29.94
1531	2Z	8	2.04	46	2.17
	49.00	100.00			

Table Labouchere Bay1990 Labouchere Bay Deer Harvest for 1990, by WAA					
WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1422	2Z	6	7.89	307	1.95
1524	2Z	6	7.89	6	100.00
1529	2Z	64	84.21	310	20.65
	76.00	99.99			

Table Labouchere Bay1991 Labouchere Bay Deer Harvest for 1991, by WAA					
WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1529	2Z	17	100.00	157	10.83

Table Metlakatla Bay1987

Metlakatla Bay Deer Harvest for 1987, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
202	1A	14	73.68	19	73.68
1211	2Z	5	26.32	58	8.62
		19.00	100.00		

Table Metlakatla Bay1988

Metlakatla Bay Deer Harvest for 1988, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
101	1A	5	11.63	135	3.70
202	1A	16	37.21	16	100.00
303	1A	19	44.19	25	76.00
1530	2Z	3	6.98	201	1.49
		43.00	100.01		

Table Metlakatla Bay1989

Metlakatla Bay Deer Harvest for 1989, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
202	1A	22	57.89	32	68.75
1211	2Z	2	5.26	132	1.52
1316	2Z	7	18.42	65	10.77
1319	2Z	2	5.26	195	1.03
1527	2Z	5	13.16	12	41.67
		38.00	99.99		

Table Metlakatla Bay1990

Metlakatla Bay Deer Harvest for 1990, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
101	1A	2	6.25	101	1.98
202	1A	12	37.50	18	66.67
303	1A	2	6.25	2	100.00
1210	2Z	9	28.13	27	33.33
1318	2Z	2	6.25	429	0.47
1422	2Z	5	15.63	307	1.63
		32.00	100.01		

Table Metlakatla1991

Metlakatla Deer Harvest for 1991, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
303	1A	20	57.14	20	100.00
1210	2Z	6	17.14	9	66.67
1214	2Z	3	8.57	83	3.61
1529	2Z	6	17.14	157	3.82
		35.00	99.99		

Table Naukati1988

Naukati Deer Harvest for 1988, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1422	2Z	6	46.15	286	2.10
1531	2Z	7	53.85	40	17.50
		13.00	100.00		

Table Naukati1989

Naukati Deer Harvest for 1989, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1422	2Z	11	52.38	375	2.93
1531	2Z	10	47.62	46	21.74
		21.00	100.00		

Table Naukati1990

Naukati Deer Harvest for 1990, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1003	2Z	5	10.42	82	6.10
1422	2Z	38	79.17	307	12.38
1531	2Z	5	10.42	52	9.62
		48.00	100.01		

Table Naukati1991

Naukati Chuck Deer Harvest for 1991, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1323	2Z	10	30.30	238	4.20
1422	2Z	17	51.52	237	7.17
1530	2Z	6	18.18	87	6.90
		33.00	100.00		

Table "Other Alaska"1987

"Other Alaska" Deer Harvest for 1987, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1318	2Z	8	3.67	494	1.62
1319	2Z	8	3.67	285	2.81
1421	2Z	3	1.38	539	0.56
3001	4Z	16	7.34	1248	1.28
3002	4Z	8	3.67	437	1.83
3003	4Z	18	7.34	531	3.01
3104	4Z	3	1.38	585	0.51
3105	4Z	29	13.30	383	7.57
3206	4Z	5	2.29	286	1.75
3309	4Z	3	1.38	190	1.58
3310	4Z	29	13.30	402	7.21
3311	4Z	18	8.26	518	3.47
3315	4Z	5	2.29	218	2.29
3416	4Z	8	3.67	163	4.91
3417	4Z	5	2.29	379	1.32
3521	4Z	3	1.38	121	2.48
3625	4Z	5	2.29	535	0.93
3731	4Z	8	3.67	131	6.11
3733	4Z	3	1.38	140	2.14
4041	4Z	16	7.34	282	5.67
4042	4Z	8	3.67	295	2.71
4146	4Z	11	5.05	240	4.58
		218.00	100.01		

Table "Other Alaska"1988

"Other Alaska" Deer Harvest for 1988, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
303	1A	6	2.34	25	24.00
612	1A	10	6.25	62	25.81
1315	2Z	5	1.95	130	3.85
1319	2Z	10	3.91	242	4.13
1422	2Z	7	2.73	286	2.45
2517	1C	17	6.64	17	100.00
2722	1C	5	1.95	318	1.57
3002	4Z	5	1.95	592	0.84
3003	4Z	13	5.08	489	2.66
3206	4Z	28	10.94	145	19.31
3313	4Z	7	2.73	125	5.60
3524	4Z	5	1.95	443	1.13
3525	4Z	63	24.61	365	17.26
3531	4Z	6	2.34	145	4.14
3627	4Z	5	1.95	111	4.50
3629	4Z	6	2.34	232	2.59
3731	4Z	7	2.73	440	1.59
3733	4Z	10	3.91	113	8.85
3835	4Z	13	5.08	13	100.00
3836	4Z	16	6.25	16	100.00
3939	4Z	6	2.34	6	100.00
		256.00	99.97		

Table "Other Alaska"1989

"Other Alaska" Deer Harvest for 1989, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
408	1A	5	3.13	58	8.62
1530	2Z	5	3.13	196	2.55
2722	1C	5	3.13	321	1.56
3001	4Z	25	15.63	553	4.52
3002	4Z	5	3.13	638	0.78
3003	4Z	15	9.38	458	3.28
3104	4Z	5	3.13	133	3.76
3313	4Z	20	12.50	187	10.70
3420	4Z	5	3.13	99	5.05
3835	4Z	5	3.13	5	100.00
3836	4Z	35	21.88	35	100.00
3837	4Z	25	15.63	25	100.00
4150	4Z	5	3.13	291	1.72
		160.00	100.06		

Table "Other Alaska"1990

"Other Alaska" Deer Harvest for 1990, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
408	1A	6	1.77	68	8.82
1210	2Z	18	5.31	27	66.67
1318	2Z	6	1.77	429	1.90
1905	3Z	12	3.54	54	22.22
2101	1C	6	1.77	6	100.00
2517	1C	12	3.54	40	30.00
3002	4Z	12	3.54	585	2.05
3314	4Z	6	1.77	230	2.61
3315	4Z	12	3.54	274	4.38
3416	4Z	37	10.91	203	18.23
3417	4Z	6	1.77	240	2.50
3419	4Z	31	9.14	126	24.60
3523	4Z	6	1.77	242	2.48
3524	4Z	6	1.77	220	2.73
3525	4Z	6	1.77	316	1.90
3629	4Z	24	7.08	127	18.90
3734	4Z	18	5.31	188	9.57
4044	4Z	18	5.31	294	6.12
4055	4Z	49	14.45	183	26.78
4147	4Z	24	7.08	195	12.31
4150	4Z	18	5.31	281	6.41
4222	4Z	6	1.77	490	1.22
		339.00	99.99		

Table "Other Alaska"1991

"Other Alaska" Deer Harvest for 1991, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1212	2Z	22	17.19	41	53.66
2722	1C	16	12.50	264	6.06
3002	4Z	5	3.91	243	2.06
3105	4Z	32	25.00	154	20.78
3835	4Z	5	3.91	409	1.22
3836	4Z	16	12.50	160	10.00
4044	4Z	32	25.00	262	12.21
		128.00	100.01		

Table "Outside Alaska"1987

"Outside Alaska" Deer Harvest for 1987, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1003	2Z	9	12.00	93	9.68
1315	2Z	5	6.67	235	2.13
1527	2Z	27	36.00	416	6.49
3417	4Z	5	6.67	379	1.32
3938	4Z	5	6.67	264	1.89
4042	4Z	5	6.67	295	1.89
4043	4Z	14	18.67	161	8.70
4148	4Z	5	6.67	311	1.61
		75.00	100.02		

Table "Outside Alaska"1988

"Outside Alaska" Deer Harvest for 1988, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1318	2Z	24	28.57	346	6.94
1421	2Z	5	5.95	329	1.52
1422	2Z	5	5.95	286	1.75
1528	2Z	10	11.90	63	15.87
1529	2Z	5	5.95	146	3.42
3003	4Z	5	5.95	489	1.02
3104	4Z	10	11.90	561	1.78
3521	4Z	5	5.95	106	4.72
3835	4Z	5	5.95	274	1.82
4044	4Z	5	5.95	111	4.50
4046	4Z	5	5.95	116	4.31
		84.00	99.97		

Table "Outside Alaska"1989

"Outside Alaska" Deer Harvest for 1989, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
406	1A	5	8.77	39	12.82
1318	2Z	5	8.77	399	1.25
1526	2Z	5	8.77	110	4.55
3001	4Z	9	15.79	553	1.63
3002	4Z	9	15.79	638	1.41
3311	4Z	5	8.77	306	1.63
3524	4Z	5	8.77	289	1.73
3551	4Z	5	8.77	307	1.63
3734	4Z	9	15.79	152	5.92
		57.00	99.99		

Table "Outside Alaska"1990

"Outside Alaska" Deer Harvest for 1990, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1003	2Z	2	2.25	82	2.44
1213	2Z	3	3.37	31	9.68
1214	2Z	3	3.37	124	2.42
1318	2Z	2	2.25	31	6.45
1317	2Z	2	2.25	79	2.53
1318	2Z	9	6.74	429	1.40
1318	2Z	9	10.11	426	2.11
1323	2Z	3	3.37	101	2.97
1421	2Z	5	5.62	118	4.24
1422	2Z	6	6.74	307	1.95
1525	2Z	2	2.25	59	3.39
1531	2Z	5	5.62	52	9.68
2722	1C	2	2.25	326	0.61
3001	4Z	2	2.25	783	0.26
3002	4Z	5	5.62	585	0.85
3207	4Z	2	2.25	99	2.02
3310	4Z	5	5.62	370	1.35
3313	4Z	3	3.37	137	2.19
3523	4Z	2	2.25	242	0.83
3526	4Z	2	2.25	355	0.56
3551	4Z	3	3.37	263	1.14
3627	4Z	2	2.25	76	2.63
3835	4Z	2	2.25	339	0.59
3836	4Z	2	2.25	297	0.67
4043	4Z	2	2.25	43	4.65
4145	4Z	2	2.25	249	0.80
4222	4Z	5	5.62	490	1.02
		89.00	100.04		

Table "Outside Alaska"1991

"Outside Alaska" Deer Harvest for 1991, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1003	2Z	2	4.35	131	1.53
1211	2Z	2	4.35	35	5.71
1214	2Z	2	4.35	83	2.41
1317	2Z	4	8.70	59	6.78
1318	2Z	2	4.35	258	6.78
1319	2Z	4	8.70	345	1.16
1421	2Z	5	10.87	172	2.41
1526	2Z	2	4.35	59	3.92
1528	2Z	5	10.87	83	21.74
1529	2Z	2	4.35	157	1.27
3002	4Z	2	4.35	243	0.82
3207	4Z	2	4.35	117	1.71
3313	4Z	2	4.35	83	2.41
3523	4Z	2	4.35	78	2.56
3835	4Z	2	4.35	409	0.49
4044	4Z	4	8.70	262	1.53
4149	4Z	2	4.35	142	1.41
		46.00	100.04		

Table Petersburg1987

Petersburg Deer Harvest for 1987, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
202	1A	5	0.35	19	26.32
1315	2Z	10	0.69	235	4.26
1316	2Z	97	6.74	140	69.29
1319	2Z	10	0.69	285	3.51
1420	2Z	5	0.35	220	2.27
1421	2Z	15	1.04	539	2.78
1422	2Z	24	1.67	495	4.85
1526	2Z	5	0.35	67	7.46
1527	2Z	73	5.07	416	17.55
1528	2Z	19	1.32	72	26.39
1529	2Z	58	4.73	295	19.66
1605	1B	24	1.67	20	100.00
1706	1B	10	0.69	19	100.00
1904	3Z	10	1.04	53	28.30
1905	3Z	10	0.69	10	100.00
2007	3Z	5	0.35	5	100.00
3002	4Z	10	0.69	437	2.29
3308	4Z	111	7.71	361	30.75
3313	4Z	44	3.34	217	22.12
3315	4Z	68	4.73	218	31.19
3417	4Z	29	2.02	379	7.65
3522	4Z	5	0.35	284	1.76
3731	4Z	34	2.36	131	25.95
3732	4Z	5	0.35	20	25.00
3733	4Z	44	3.06	140	31.43
3734	4Z	15	1.04	93	16.13
3836	4Z	19	0.69	478	2.09
3938	4Z	117	8.13	264	44.32
3939	4Z	262	18.21	405	64.69

Table Petersburg1987 (Continued)

Petersburg Deer Harvest for 1987, by WAA

3940	4Z	155	10.77	225	68.89
4042	4Z	5	0.35	295	1.69
4043	4Z	5	0.35	161	3.11
4145	4Z	29	2.02	146	19.86
4146	4Z	83	5.77	240	34.58
4147	4Z	19	1.32	595	3.19
		1,439.00	100.00		

Table Petersburg1988

Petersburg Deer Harvest for 1988, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1003	2Z	11	0.93	126	8.73
1420	2Z	5	0.42	185	2.70
1421	2Z	5	0.42	329	1.52
1524	2Z	5	0.42	5	100.00
1526	2Z	53	4.49	115	46.09
1527	2Z	16	1.36	63	37.21
1528	2Z	16	1.36	63	25.40
1529	2Z	21	1.78	146	14.38
1530	2Z	5	0.42	201	2.49
1605	1B	42	3.56	42	100.00
1706	1B	11	0.93	11	100.00
1707	1B	5	0.42	11	45.45
1904	3Z	11	0.93	126	9.17
1905	3Z	5	0.42	11	45.45
3001	4Z	21	1.78	1028	2.04
3311	4Z	11	0.93	330	3.33
3313	4Z	16	1.36	125	12.80
3315	4Z	69	5.85	184	37.50
3523	4Z	11	0.93	185	5.95
3531	4Z	21	1.78	115	14.48
3533	4Z	5	0.42	118	4.24
3731	4Z	302	25.59	440	68.64
3732	4Z	5	0.42	5	100.00
3733	4Z	32	2.71	113	28.32
3938	4Z	106	8.98	298	35.57
3939	4Z	344	29.15	421	81.71
3940	4Z	21	1.78	204	10.29
9999	NA	5	0.42	50	10.00
		1,180.00	99.96		

Table Petersburg1989

Petersburg Deer Harvest for 1989, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1003	2Z	14	1.27	128	10.94
1318	2Z	5	0.45	399	1.25
1319	2Z	9	0.82	115	4.62
1323	2Z	18	1.63	93	19.35
1420	2Z	5	0.45	115	4.35
1421	2Z	9	0.82	224	4.62
1526	2Z	46	4.17	110	41.82
1528	2Z	23	2.09	51	45.10
1529	2Z	28	2.54	157	17.83
1530	2Z	13	1.27	196	7.14
1531	2Z	5	0.45	46	10.87
1602	1B	5	0.45	5	100.00
1603	1B	5	0.45	5	100.00
1605	1B	37	3.36	37	100.00
1706	1B	9	0.82	9	100.00
1904	3Z	9	0.82	122	7.38
1905	3Z	14	1.27	26	53.85
3308	4Z	28	2.54	187	14.97
3309	4Z	46	4.17	195	23.59
3310	4Z	5	0.45	365	1.37
3313	4Z	5	0.45	187	2.67
3315	4Z	133	12.07	216	61.57
3523	4Z	14	1.27	156	8.97
3525	4Z	28	2.54	289	9.69
3731	4Z	46	4.17	107	42.99
3732	4Z	46	4.17	68	67.65
3734	4Z	28	2.54	152	18.42
3938	4Z	60	5.44	225	26.67
3939	4Z	220	19.96	342	64.33

Table Petersburg1989 (Continued)
Petersburg Deer Harvest for 1989, by WAA

3940	4Z	110	9.98	157	70.06
4055	4Z	14	1.27	75	18.67
4145	4Z	18	1.63	188	9.57
4148	4Z	18	1.63	264	6.82
4149	4Z	28	2.54	206	13.59
		1,102.00	99.95		

Table Petersburg1990

Petersburg Deer Harvest for 1990, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
315	2Z	5	0.33	144	3.47
1318	2Z	5	0.33	429	1.17
1319	2Z	5	0.33	426	1.17
1323	2Z	20	1.30	101	19.80
1420	2Z	25	1.63	144	17.36
1421	2Z	10	0.65	118	8.47
1422	2Z	10	0.65	307	3.26
1526	2Z	5	0.33	26	19.23
1528	2Z	5	0.33	33	15.15
1529	2Z	20	1.30	310	6.45
1603	1B	10	0.65	10	100.00
1605	1B	79	5.15	79	100.00
1706	1B	35	2.28	35	100.00
1707	1B	5	0.33	5	100.00
1901	3Z	5	0.33	23	21.74
1904	3Z	10	0.65	91	10.99
1905	3Z	10	0.65	54	18.52
2926	1C	5	0.33	22	22.73
3308	4Z	20	1.30	160	12.50
3309	4Z	30	1.96	371	8.09
3310	4Z	10	0.65	370	2.70
3312	4Z	5	0.33	205	2.44
3313	4Z	20	1.30	137	14.60
3315	4Z	104	6.78	274	37.96
3731	4Z	69	4.50	154	44.81
3733	4Z	25	1.63	126	19.84
3938	4Z	203	13.23	445	45.62
3939	4Z	332	21.64	420	79.05
3940	4Z	322	20.99	557	57.81

Table Petersburg1990 (Continued)

Petersburg Deer Harvest for 1990, by WAA

4041	4Z	5	0.33	64	7.81
4055	4Z	30	1.96	183	16.39
4145	4Z	25	1.63	249	10.04
4146	4Z	10	0.65	120	8.33
4147	4Z	20	1.30	195	10.26
4148	4Z	35	2.28	166	21.08
		1,534.00	100.01		

Table Petersburg1991

Petersburg Deer Harvest for 1991, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1318	2Z	5	0.78	258	1.94
1318	2Z	5	0.78	345	1.45
1323	2Z	16	2.49	238	6.72
1525	2Z	11	1.71	68	16.18
1528	2Z	11	1.71	23	47.83
1601	1B	5	0.78	5	100.00
1605	1B	21	3.27	21	100.00
1706	1B	16	2.49	16	100.00
1904	3Z	5	0.78	12	11.90
2007	3Z	155	24.14	162	95.68
2008	3Z	11	1.71	11	100.00
3308	4Z	27	4.21	165	16.36
3315	4Z	21	3.27	47	44.68
3731	4Z	5	0.78	12	41.67
3733	4Z	21	3.27	95	22.11
3835	4Z	11	1.71	409	2.69
3938	4Z	54	8.41	139	38.85
3939	4Z	129	20.09	137	94.16
3940	4Z	70	10.90	171	40.94
4145	4Z	11	1.71	169	6.51
4253	4Z	32	4.98	91	35.16
		642.00	99.97		

Table Point Baker1987

Point Baker Deer Harvest for 1987, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1527	2Z	3	6.25	416	0.72
1529	2Z	33	68.75	295	11.19
3939	4Z	12	25.00	405	2.96
		48.00	100.00		

Table Point Baker 1988

Point Baker Deer Harvest for 1988, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1321	2Z	3	10.34	76	3.95
1526	2Z	3	10.34	115	2.61
1527	2Z	5	17.24	43	11.63
1529	2Z	18	62.07	146	12.33
		29.00	99.99		

Table Point Baker1989

Point Baker Deer Harvest for 1989, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1526	2Z	6	22.22	110	5.45
1529	2Z	21	77.78	157	13.38
		27.00	100.00		

Table Point Baker1990 Point Baker Deer Harvest for 1990, by WAA					
WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1525	2Z	2	12.50	59	3.39
1528	2Z	8	50.00	33	24.24
1529	2Z	6	37.50	310	1.94
		16.00	100.00		

Table Point Baker1991 Point Baker Deer Harvest for 1991, by WAA					
WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1529	2Z	4	100.00	157	2.55

Table Port Protection1987

Port Protection Deer Harvest for 1987, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1529	2Z	9	100.00	295	3.05

Table Port Protection1988

Port Protection Deer Harvest for 1988, by WAA

No Reported Harvest

Table Port Protection1989

Port Protection Deer Harvest for 1989, by WAA

No Reported Harvest

Table Port Protection1990

Port Protection Deer Harvest for 1990, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1529	2Z	16	100.00	310	5.16

Table Port Protection1991

Port Protection Deer Harvest for 1991, by WAA

No Reported Harvest

Table Saxman1987

Saxman Deer Harvest for 1987, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
406	1A	12	66.67	71	16.90
1318	2Z	6	33.33	494	1.21
		18.00	100.00		

Table Saxman1988

Saxman Deer Harvest for 1988, by WAA

No Reported Harvest

Table Saxman1989

Saxman Deer Harvest for 1989, by WAA

No Reported Harvest

Table Saxman1990

Saxman Deer Harvest for 1990, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
408	1A	11	100.00	68	16.18

Table Saxman1991

Saxman Deer Harvest for 1991, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
407	1A	2	11.11	40	5.00
1211	2Z	2	11.11	35	5.71
1315	2Z	7	38.89	144	4.86
1319	2Z	7	38.89	345	2.03
		18.00	100.00		

Table Skowl Arm/Polk1987

Skowl Arm/Polk Deer Harvest for 1987, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1214	2Z	36	100.00	90	40.00

Table Skowl Arm/Polk1988

Skowl Arm/Polk Deer Harvest for 1988, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1214	2Z	29	78.38	93	31.18
1529	2Z	8	21.62	146	5.48
		37.00	100.00		

Table Skowl Arm/Polk1989

Skowl Arm/Polk Deer Harvest for 1989, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1214	2Z	15	100.00	81	18.52

Table Skowl Arm/Polk1990

Skowl Arm/Polk Deer Harvest for 1990, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1214	2Z	24	100.00	124	19.35

Table Skowl Arm/Polk1991

Skowl Arm/Polk Deer Harvest for 1991, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1212	2Z	4	33.33	41	9.76
1214	2Z	6	50.00	83	7.23
1317	2Z	2	16.67	59	3.39
		12.00	100.00		

Table Thorne Bay1987

Thorne Bay Deer Harvest for 1987, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1315	2Z	110	30.14	235	46.81
1319	2Z	106	29.04	285	37.19
1420	2Z	23	6.30	220	10.45
1421	2Z	68	18.63	539	12.62
1422	2Z	38	10.41	495	7.68
1527	2Z	16	6.30	416	3.85
9999	NA	4	1.10	216	1.85
		365.00	100.00		

Table Thorne Bay1988

Thorne Bay Deer Harvest for 1988, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1003	2Z	11	3.50	126	8.73
1107	2Z	16	5.10	49	32.65
1214	2Z	5	1.59	93	5.38
1315	2Z	82	26.11	130	63.08
1316	2Z	5	1.59	77	6.49
1318	2Z	5	1.59	346	1.45
1319	2Z	98	31.21	242	40.50
1420	2Z	16	5.10	185	8.65
1421	2Z	11	3.50	329	3.34
1422	2Z	60	19.11	286	20.98
1529	2Z	5	1.59	146	3.42
		314.00	99.99		

Table Thorne Bay1989

Thorne Bay Deer Harvest for 1989, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
510	1A	20	5.73	56	35.71
1214	2Z	13	3.72	31	16.05
1315	2Z	59	16.91	92	64.13
1318	2Z	33	9.46	399	8.27
1319	2Z	111	31.81	195	56.92
1323	2Z	7	2.01	93	7.53
1420	2Z	7	2.01	195	6.09
1421	2Z	20	5.73	224	8.93
1422	2Z	65	18.62	375	17.33
1528	2Z	7	2.01	51	13.73
3003	4Z	7	2.01	458	1.53
		349.00	100.02		

Table Thorne Bay1990

Thorne Bay Deer Harvest for 1990, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
901	2Z	6	1.36	19	31.58
1315	2Z	65	21.59	144	65.97
1318	2Z	12	2.73	31	38.71
1319	2Z	249	56.59	426	58.45
1420	2Z	12	2.73	144	8.33
1421	2Z	19	4.09	118	15.25
1422	2Z	24	5.45	307	7.82
1527	2Z	6	1.36	27	22.22
1530	2Z	6	1.36	215	2.79
5132	12	12	2.73	12	100.00
		440.00	99.99		

Table Thorne Bay1991

Thorne Bay Deer Harvest for 1991, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
901	2Z	5	1.72	50	10.00
1214	2Z	11	3.78	83	13.25
1315	2Z	11	27.84	144	56.25
1316	2Z	5	1.72	47	10.64
1318	2Z	5	1.72	258	1.94
1319	2Z	130	44.67	345	37.68
1323	2Z	11	3.78	238	4.62
1420	2Z	16	5.50	38	42.11
1422	2Z	11	3.78	237	4.64
4147	4Z	16	5.50	162	9.88
		291.00	100.01		

Table Whale Pass1987

Whale Pass Deer Harvest for 1987, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1527	2Z	31	83.78	416	7.45
1528	2Z	3	8.11	72	4.17
1529	2Z	3	8.11	295	1.02
		37.00	100.00		

Table Whale Pass1988

Whale Pass Deer Harvest for 1988, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1421	2Z	3	9.09	329	0.91
1422	2Z	2	6.06	286	0.70
1529	2Z	3	9.09	146	2.05
1530	2Z	25	75.76	201	12.44
		33.00	100.00		

Table Whale Pass1989

Whale Pass Deer Harvest for 1989, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1107	2Z	13	20.31	49	26.53
1318	2Z	10	15.63	399	2.51
1319	2Z	5	7.81	195	2.56
1421	2Z	5	7.81	224	2.23
1530	2Z	31	48.44	196	15.82
		64.00	100.00		

Table Whale Pass1990

Whale Pass Deer Harvest for 1990, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1316	2Z	2	4.65	31	6.45
1319	2Z	7	16.28	426	1.64
1422	2Z	3	6.98	307	0.98
1527	2Z	5	11.63	27	18.52
1528	2Z	2	4.65	33	6.06
1529	2Z	5	11.63	310	1.61
1530	2Z	14	32.56	215	6.51
4148	4Z	5	11.63	166	3.01
		43.00	100.01		

Table Whale Pass1991

Whale Pass Deer Harvest for 1991, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1319	2Z	6	14.29	345	1.74
1422	2Z	1	2.38	237	0.42
1526	2Z	3	7.14	51	5.88
1527	2Z	3	7.14	87	5.26
1528	2Z	7	16.67	23	30.43
1529	2Z	3	7.14	157	1.91
1530	2Z	19	45.24	87	21.84
		42.00	100.00		

Table Wrangell1987

Wrangell Deer Harvest for 1987, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1420	2Z	19	5.92	220	8.64
1525	2Z	6	1.87	46	13.04
1526	2Z	13	4.05	67	19.40
1527	2Z	38	11.84	416	9.13
1528	2Z	13	4.05	72	18.06
1529	2Z	6	1.87	295	2.03
1901	3Z	19	5.92	19	100.00
1903	3Z	25	7.79	25	100.00
1904	3Z	38	11.84	53	71.70
1906	3Z	25	7.79	25	100.00
3001	4Z	25	7.79	1248	2.00
3313	4Z	25	7.79	217	11.52
3731	4Z	13	4.05	131	9.92
3733	4Z	25	7.79	140	17.86
3938	4Z	25	7.79	264	9.47
4041	4Z	6	1.87	282	2.13
		321.00	100.02		

Table Wrangell1988

Wrangell Deer Harvest for 1988, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1003	2Z	6	1.66	126	4.76
1319	2Z	12	3.32	242	4.96
1526	2Z	12	3.32	115	10.43
1528	2Z	24	6.65	63	38.10
1529	2Z	18	4.99	146	12.33
1530	2Z	36	9.97	201	17.91
1707	1B	6	1.66	11	54.55
1810	1B	12	3.32	12	100.00
1903	3Z	12	11.63	12	100.00
1904	3Z	109	30.19	120	90.83
1905	3Z	6	1.66	11	54.55
1906	3Z	24	6.65	37	64.86
1908	3Z	12	3.32	12	100.00
3525	4Z	6	1.66	365	1.64
3733	4Z	12	3.32	113	10.62
3734	4Z	18	4.99	87	20.69
5015	3Z	6	1.66	11	54.55
		361.00	99.97		

Table Wrangell1989

Wrangell Deer Harvest for 1989, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1316	2Z	5	1.30	65	7.69
1318	2Z	5	1.30	399	1.25
1319	2Z	15	3.89	195	7.69
1323	2Z	5	1.30	93	5.38
1422	2Z	5	1.30	375	1.33
1525	2Z	5	1.30	24	20.83
1526	2Z	5	1.30	110	4.55
1530	2Z	61	15.80	196	31.12
1902	3Z	5	1.30	5	100.00
1903	3Z	15	3.89	15	100.00
1904	3Z	113	29.27	122	92.62
1905	3Z	5	1.30	26	19.23
1906	3Z	31	8.03	37	83.78
1910	3Z	15	3.89	15	100.00
3731	4Z	24	5.18	107	18.69
3733	4Z	10	11.92	122	37.70
3734	4Z	10	2.59	152	6.58
3938	4Z	10	2.59	225	4.44
3939	4Z	5	1.30	342	1.46
4041	4Z	5	1.30	43	11.63
		386.00	100.05		

Table Wrangell1990
Wrangell Deer Harvest for 1990, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1420	2Z	5	1.53	144	3.47
1528	2Z	11	3.36	33	33.33
1530	2Z	92	28.13	215	42.79
1816	1B	5	1.53	5	100.00
1901	3Z	11	3.36	23	47.83
1903	3Z	16	4.89	18	100.00
1904	3Z	11	24.77	91	89.01
1905	3Z	27	8.26	54	50.00
1906	3Z	16	4.89	18	88.89
1910	3Z	16	4.89	30	53.33
3001	4Z	5	1.53	783	0.64
3308	4Z	5	1.53	160	3.13
3311	4Z	16	4.89	354	4.52
3312	4Z	5	1.53	205	2.44
3314	4Z	5	1.53	230	2.17
3940	4Z	11	3.36	557	1.97
		327.00	99.98		

Table Wrangell1991

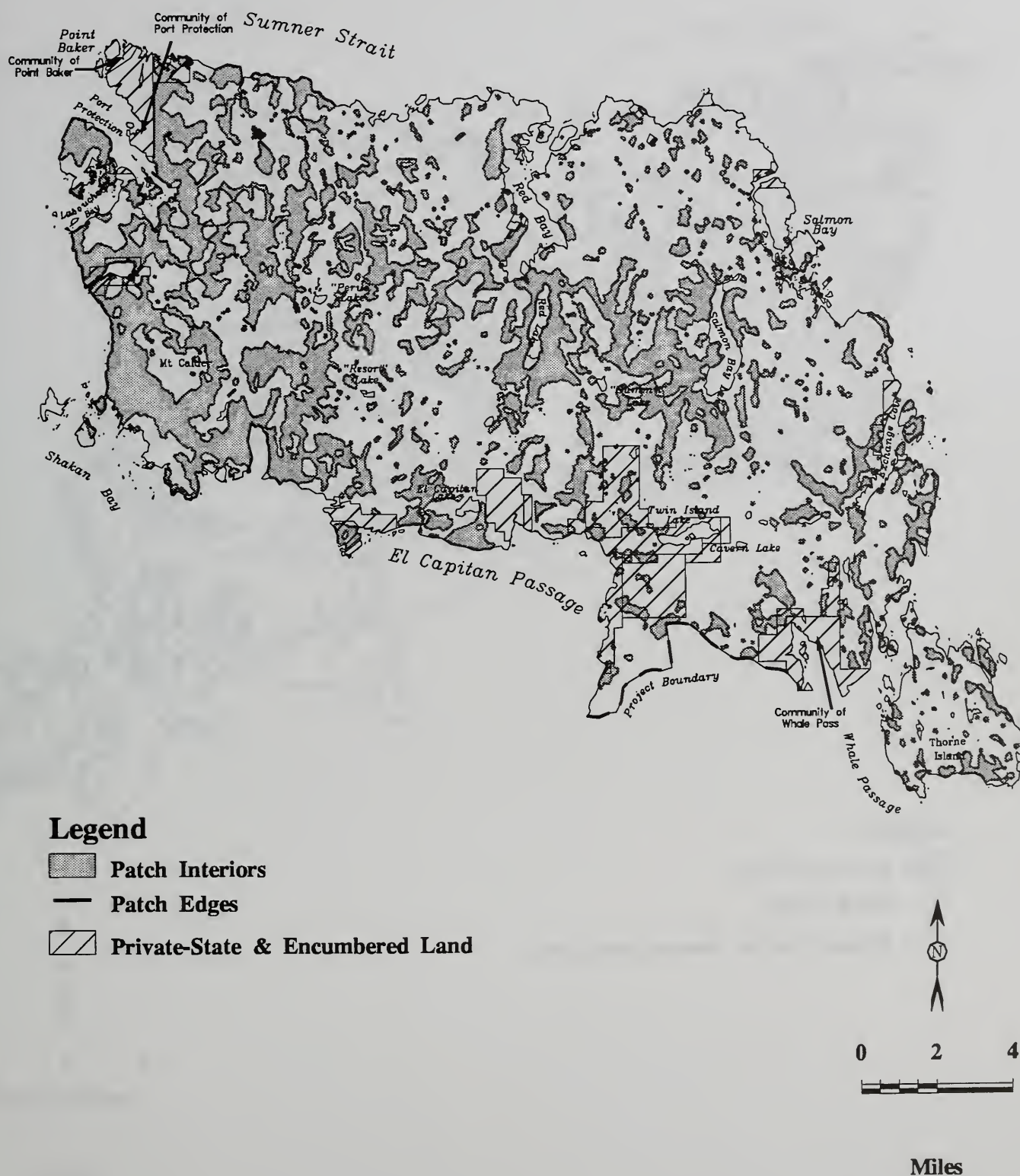
Wrangell Deer Harvest for 1991, by WAA

WAA	GMU	Community Harvest from WAA	Percent Total Community Harvest from WAA	Total WAA Deer Harvest	Percent Total WAA Harvest from Community
1421	2Z	6	2.29	172	3.49
1525	2Z	6	2.29	68	8.82
1531	2Z	6	2.29	26	23.08
1903	3Z	18	6.87	18	100.00
1904	3Z	37	14.12	42	88.10
1905	3Z	117	44.66	117	100.00
1906	3Z	12	4.58	12	100.00
1910	3Z	18	6.87	49	36.73
3001	4Z	6	2.29	276	2.17
3002	4Z	18	6.87	243	7.41
3314	4Z	6	2.29	47	12.77
3940	4Z	12	4.58	171	7.02
		262.00	100.00		

Appendix K

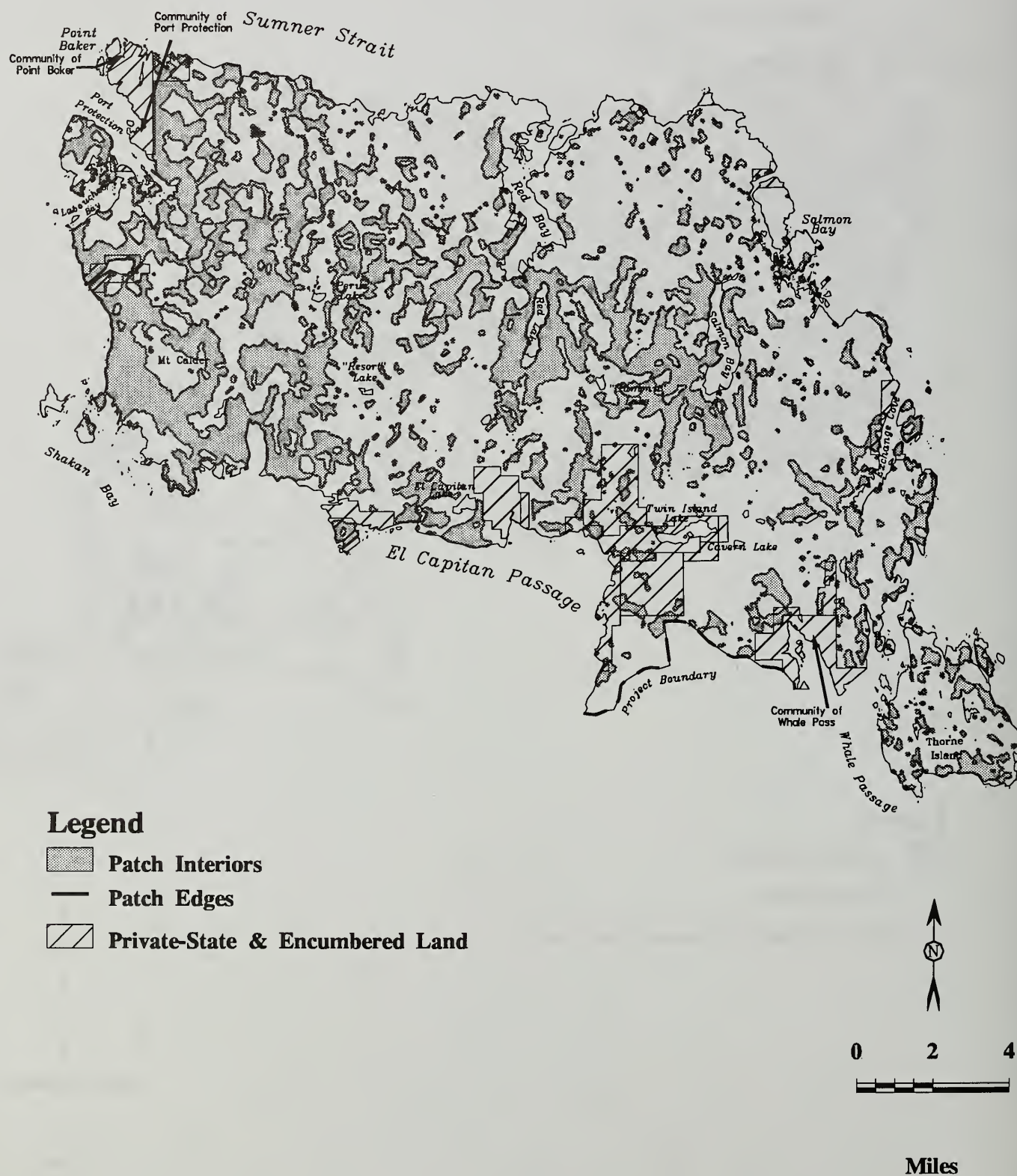
Old Growth Patch Maps

Figure K-1
Old-Growth Patch Map for Alternative 3



Source: Ketchikan Area GIS

Figure K-2
Old-Growth Patch Map for Alternative 4



Source: Ketchikan Area GIS



APPENDIX K ■ 3

Appendix L

Riparian Management Area Buffer Widths

Riparian Management Area (RMA) Component Widths

Stream Class	Channel Type	Former Channel Type	No Commercial ^a Harvest Buffer (feet)	No Programmed ^b Harvest Buffer (feet)	Selective ^c Harvest Buffer (feet)	Planning Level ^d Zone (feet)	Total RMA ^d (feet)
I	AF1	B5 ^f	100	0	50	11	161
I	AF2	A3	100	0	0	7	107
I	AF8	D6	100	0	0	25	125
I	ES1	E4	100	0	0	14	114
I	ES2	E3	100	100	0	17	217
I	ES3	E2	100	100	0	20	220
I	ES4	E1	100	400	0	40	540
I	ES8	E5	100	400	0	33	533
I	FP1	C4 ^f	100	100	0	29	229
I	FP2	C6 ^f ,B8	100	100	0	30	230
I	FP3	B1	100	0	100	10	210
I	FP4	C1 ^f	100	100	0	25	225
I	FP5	C3 ^f	100	100	0	54	254
I	GO1	D8	100	100	0	43	243
I	GO2	D4 ^f	100	100	0	70	270
I	GO3	D5 ^f	100	100	0	108	308
I	GO4	D3 ^f	100	0	0	102	202
I	L	L	100	0	400	0	500
I	LC1	C2	100	0	0	27	127
I	LC2	C5	100	0	0	30	130
I	MC1	B4	100	0	50	9	159
I	MC2	B6	100	0	0	15	115
I	MC3	B7	100	0	0	16	116
I	MM1	B2	100	0	0	9	109
I	MM2	B3 ^f	100	0	0	73	173
I	PA1	L1	100	0	0	8	108
I	PA2	L2 ^f	100	50	0	30	180
I	PA3	L4	100	0	0	20	120
I	PA4	L5	100	0	0	27	127
I	PA5	L3	100	0	0	13	113
IIa	AF1	B5 ^f	100	0	50	11	161
IIa ^e	AF2	A3	100	0	0	7	107
IIa	AF8	D6	100	0	0	25	125
IIa	GO4	D3 ^f	100	0	0	102	202
IIa	L (>50ac)	L (>50ac)	100	0	400	0	500
IIa	L (<50ac)	L (<50ac)	100	0	0	0	100
IIa	L (<5ac)	L (<5ac)	100	0	0	0	100
IIa	LC1	C2	100	0	0	27	127
IIa	LC2	C5	100	0	0	30	130

Appendix L

Stream Class	Channel Type ^a	Former Channel Type	No Commercial ^a Harvest Buffer (feet)	No Programmed ^b Harvest Buffer (feet)	Selective ^c Harvest Buffer (feet)	Planning Level ^c Zone (feet)	Total RMA ^d (feet)
IIa	MC1	B4	100	0	50	9	159
IIa	MC2	B6	100	0	0	15	115
IIa	MC3	B7	100	0	0	16	116
IIa	MM1	B2	100	0	0	9	109
IIa	MM2	B3	100	0	0	73	173
IIa	PA1	L1	100	0	0	8	108
IIa	PA2	L2 ^f	100	50	0	30	180
IIa	PA3	L4	100	0	0	20	120
IIa	PA4	L5	100	0	0	27	127
IIa	PA5	L3	100	0	0	13	113
IIb ^f	AF1	B5 ^f	0	25	35	101	161
IIb	AF2	A3	0	25	35	47	107
IIb	AF8	D6	0	25	35	51	111
IIb	GO4	D3 ^f	0	0	25	177	202
IIb	L (<50ac)	L (<50ac)	0	100	400	0	500
IIb	L (<50ac)	L (<50ac)	0	0	100	0	100
IIb	L (<5ac)	L (<5ac)	0	0	0	100	100
IIb	LC1	C2	0	25	0	102	127
IIb	LC2	C5	0	0	0	130	130
IIb	MC1	B4	0	0	150	9	159
IIb	MC2	B6	0	0	0	115	115
IIb	MC3	B7	0	0	0	116	116
IIb	MM1	B2	0	0	25	84	109
IIb	MM2	B3 ^f	0	0	60	113	173
IIb	PA1	L1	0	100	0	8	108
IIb	PA2	L2 ^f	0	150	0	30	180
IIb	PA3	L4	0	100	0	20	120
IIb	PA4	L5	0	100	0	27	127
IIb	PA5	L3	0	100	0	13	113
III	AF1	B5 ^f	0	25	0	136	161
III	AF2	A3	0	25	0	82	107
III	AF8	D6	0	25	0	100	125
III	GO4	D3 ^f	0	0	25	127	152
III	HC1	A6	0	0	0	107	107
III	HC2	A7	0	0	0	109	109
III	HC3	A2	0	0	0	112	112
III	HC4	A5	0	0	0	109	109
III	HC5	A4	0	0	0	107	107
III	HC6	A1	0	0	0	110	110
III	HC8	D7	0	0	0	132	132
III	HC9	D2	0	0	0	128	128

Stream Class	Channel Type ^a	Former Channel Type	No Commercial ^a Harvest Buffer (feet)	No Programmed ^b Harvest Buffer (feet)	Selective ^c Harvest Buffer (feet)	Planning Level ^e Zone (feet)	Total RMA ^d (feet)
III	L (>50ac)	L (>50ac)	0	100	400	0	500
III	L (<50ac)	L (<50ac)	0	0	100	0	100
III	L (<5ac)	L (<5ac)	0	0	0	100	100
III	MC1	B4	0	0	0	159	159
III	MC2	B6	0	0	0	115	115
III	MC3	B7	0	0	0	116	116
III	MM1	B2	0	0	25	84	109
III	MM2	B3 ^f	0	0	0	173	173
III	PA3	L4	0	0	0	120	120
III	PA4	L5	0	0	0	127	127
III	PA5	L3	0	0	0	113	113
—	Beach	n/a	0	500	0	0	500
—	Estuary	n/a	0	1,000	0	0	1,000

^a No commercial harvest is allowed within this buffer, although limited clearing for road building is permitted.

^b No programmed harvest is allowed within this buffer, however salvage and individual tree cutting may occur.

^c Harvest of trees is allowable using selective harvest methods or uneven-aged management within this buffer.

^d Total RMA is comprised of the four buffer components which at a minimum equals 100 feet plus 1/2 the channel width. The Planning Level Buffer is equal to 1/2 the channel width plus the difference between the minimum 100 foot RMA requirement and the first 3 buffers.

^e IIa - denotes Class II stream that flows directly into a Class I stream

IIb - denotes Class II stream that does not flow directly into a Class I stream

^f These channel types receive a minimum 150 foot buffer. This decision was documented by the TLMP Planning Team in a memo dated 1/18/89.

Buffer widths are displayed for one side of the channel; this number must be multiplied by two to determine total buffer width.

Buffer widths are measured as slope distance from the edge of streams and lakes, and as slope distance inland from mean high tide for beach fringe and estuaries. Actual buffers prescribed in the field may be wider than indicated, depending on site specific analysis. See Forest Service Management Prescriptions (TLMP Draft Revision 1991) for additional requirements.

Appendix M

Perspective Plots

Figure M-1

Red Bay Perspective Plots

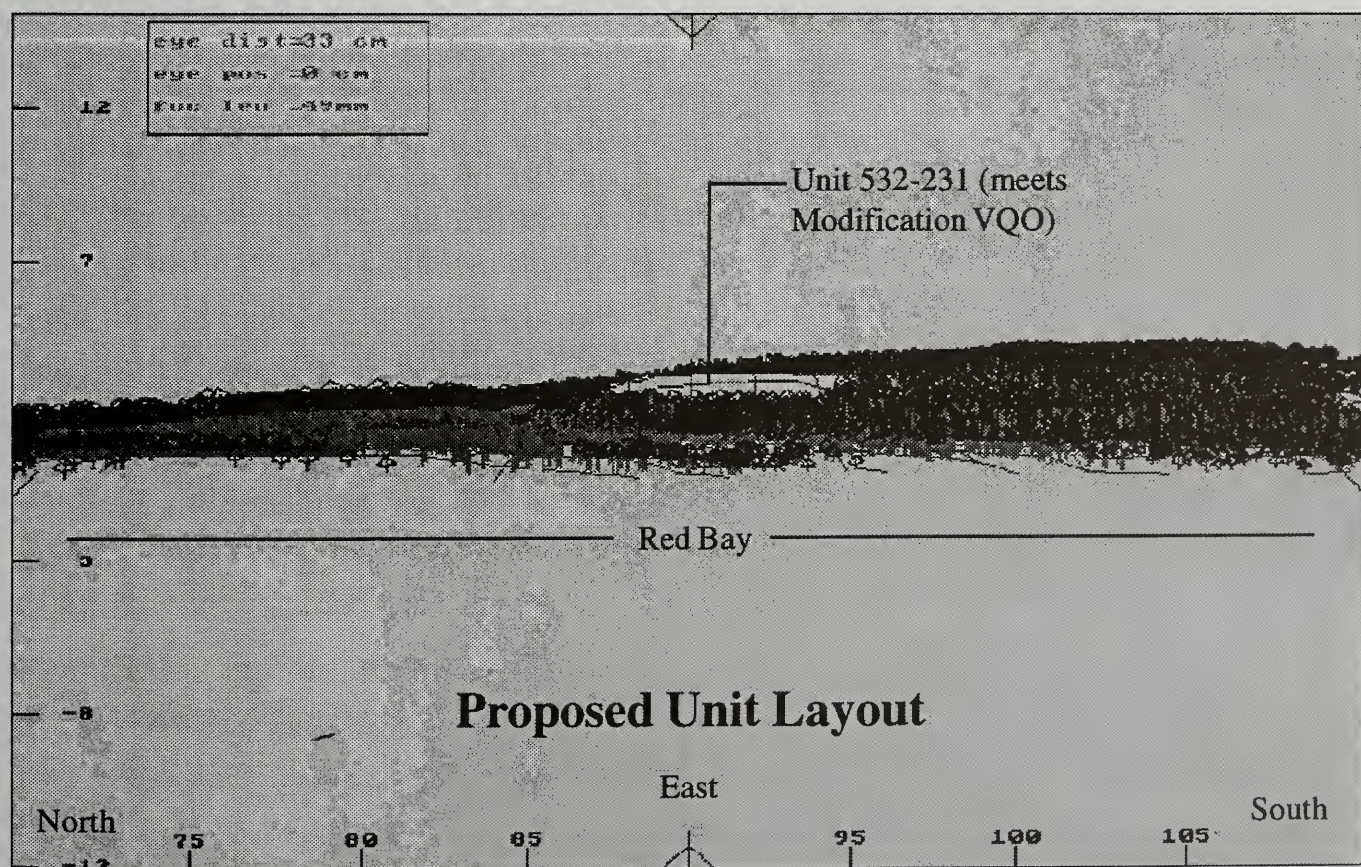
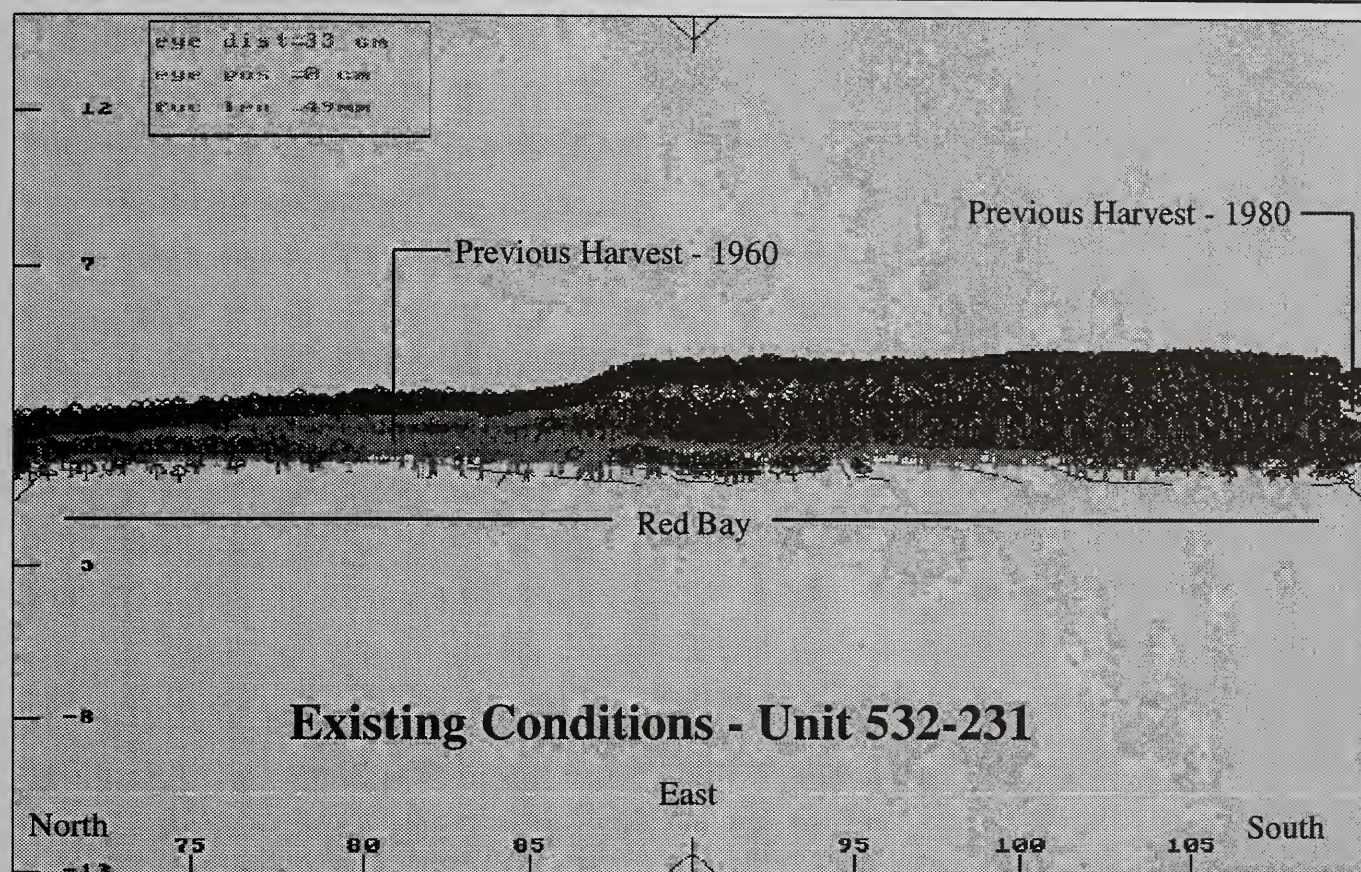


Figure M-2

Whale Passage Resort Perspective Plots

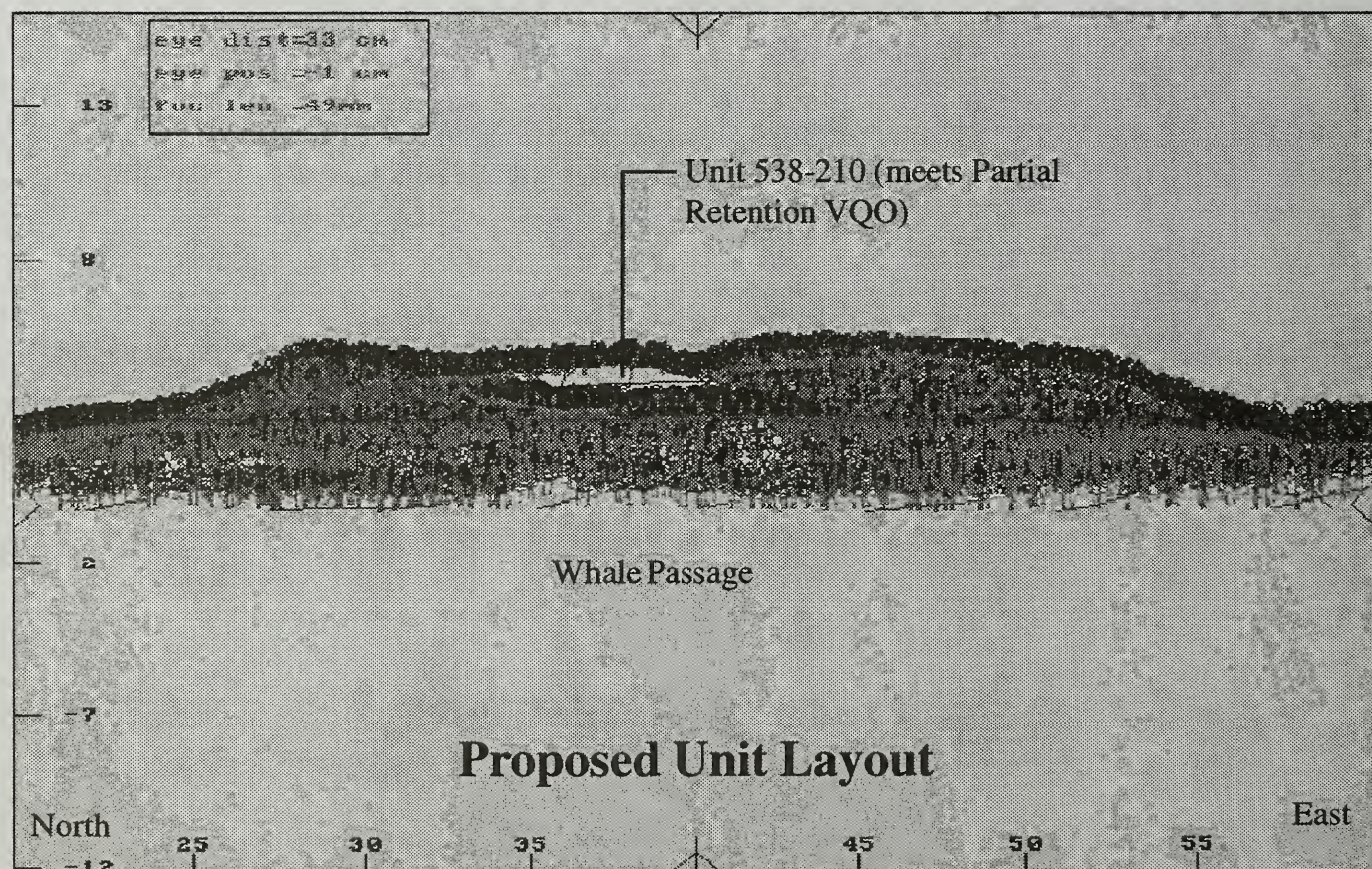
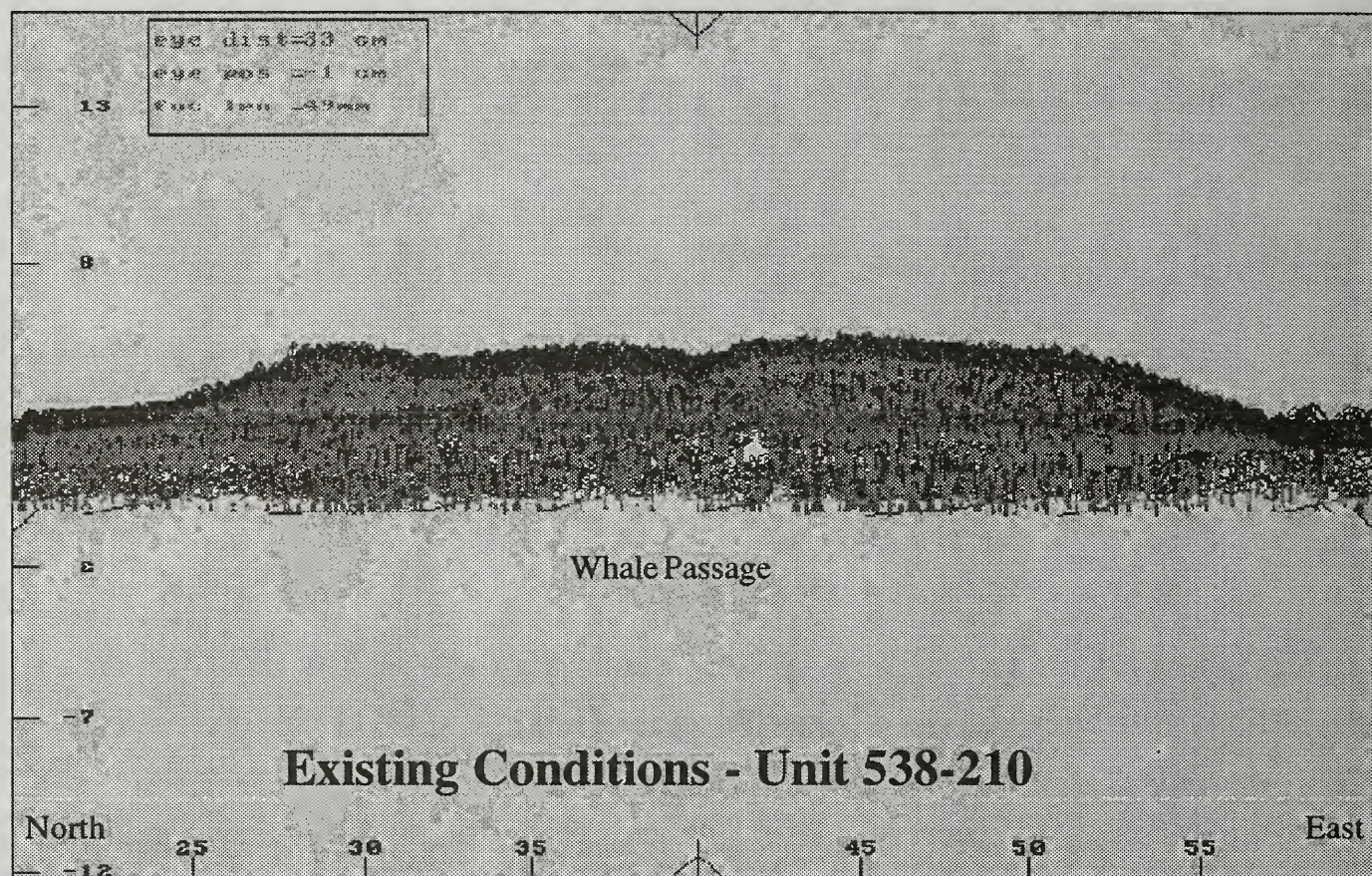


Figure M-3
Exchange Cove Perspective Plots

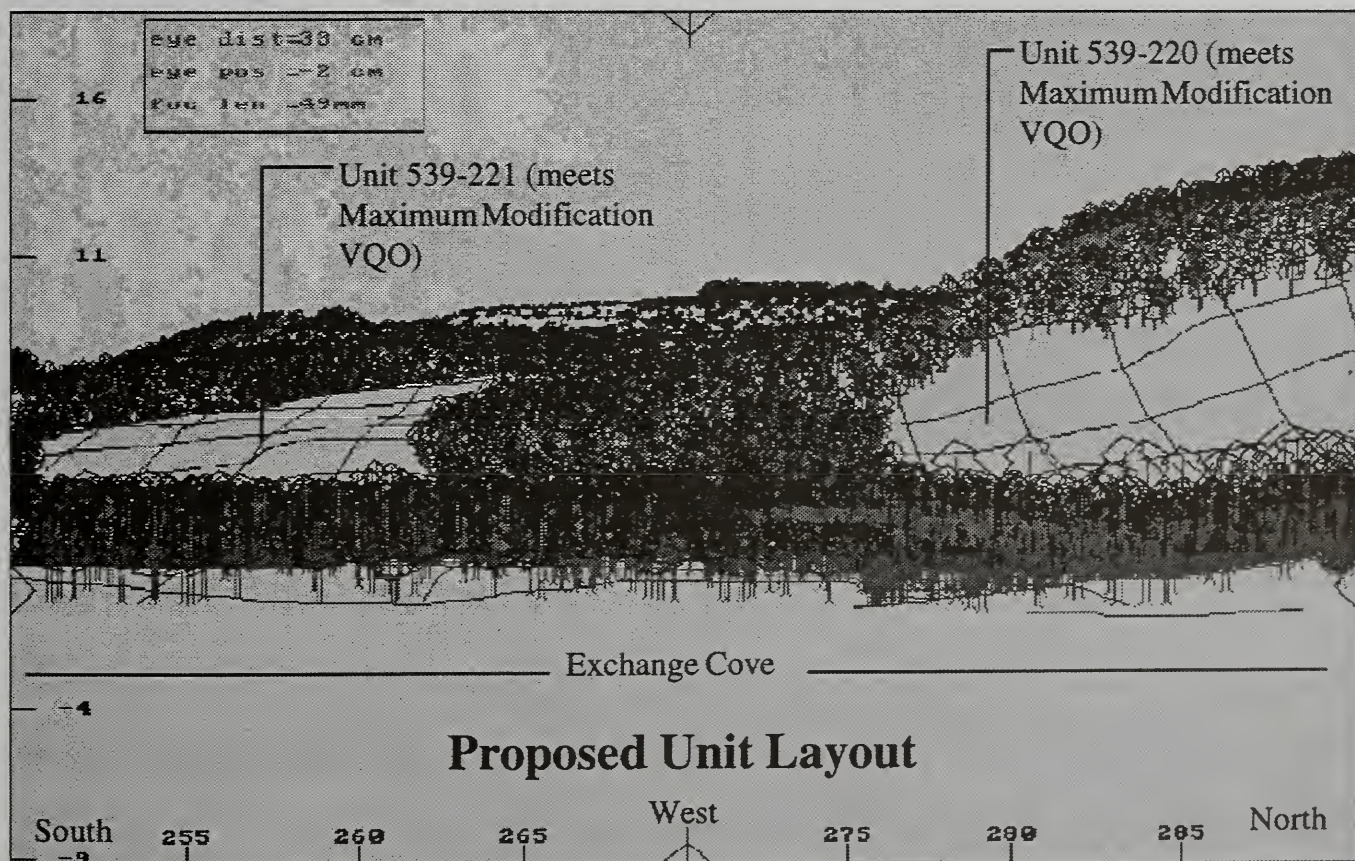
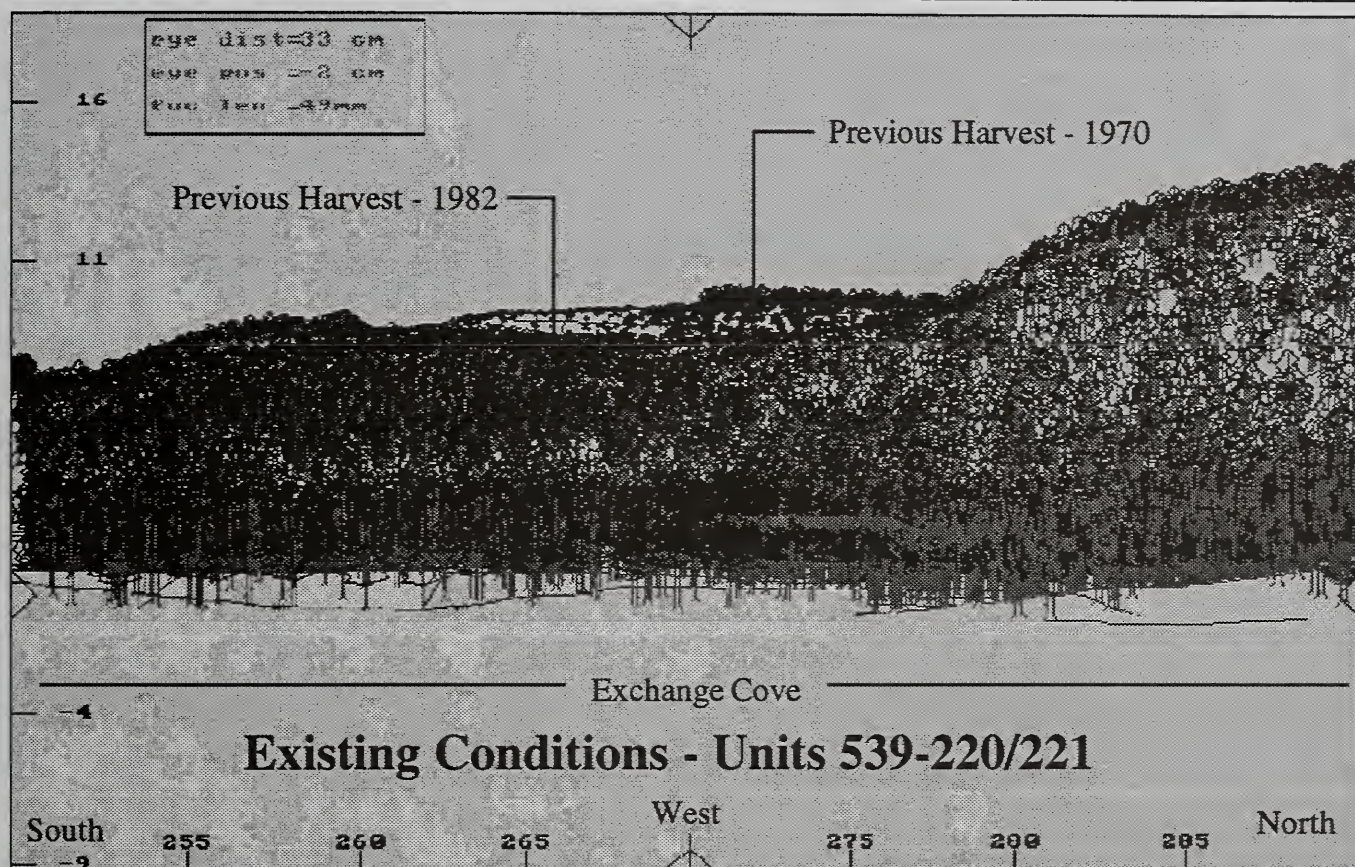


Figure M-4
Cruiseship Route Perspective Plots

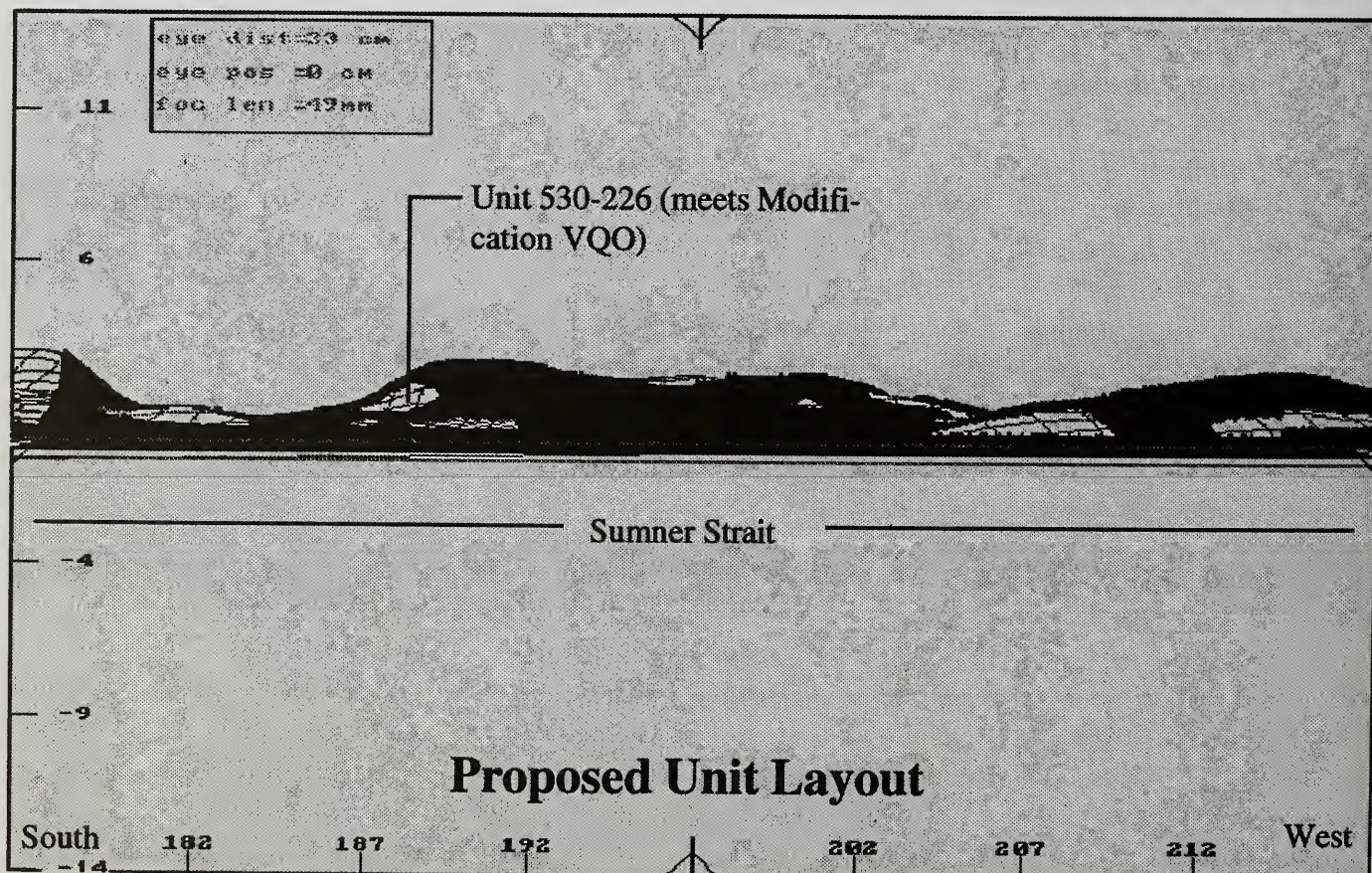
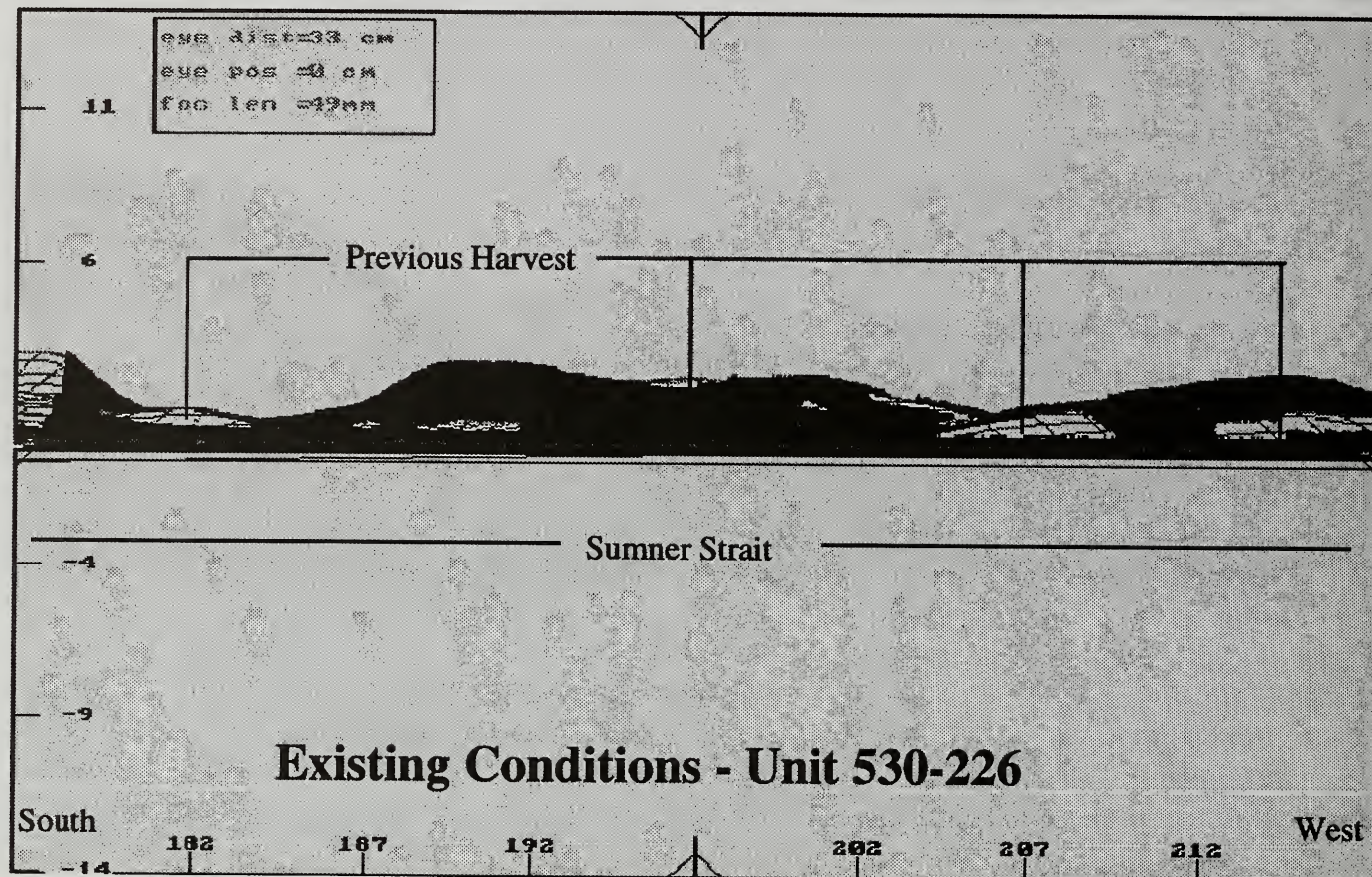
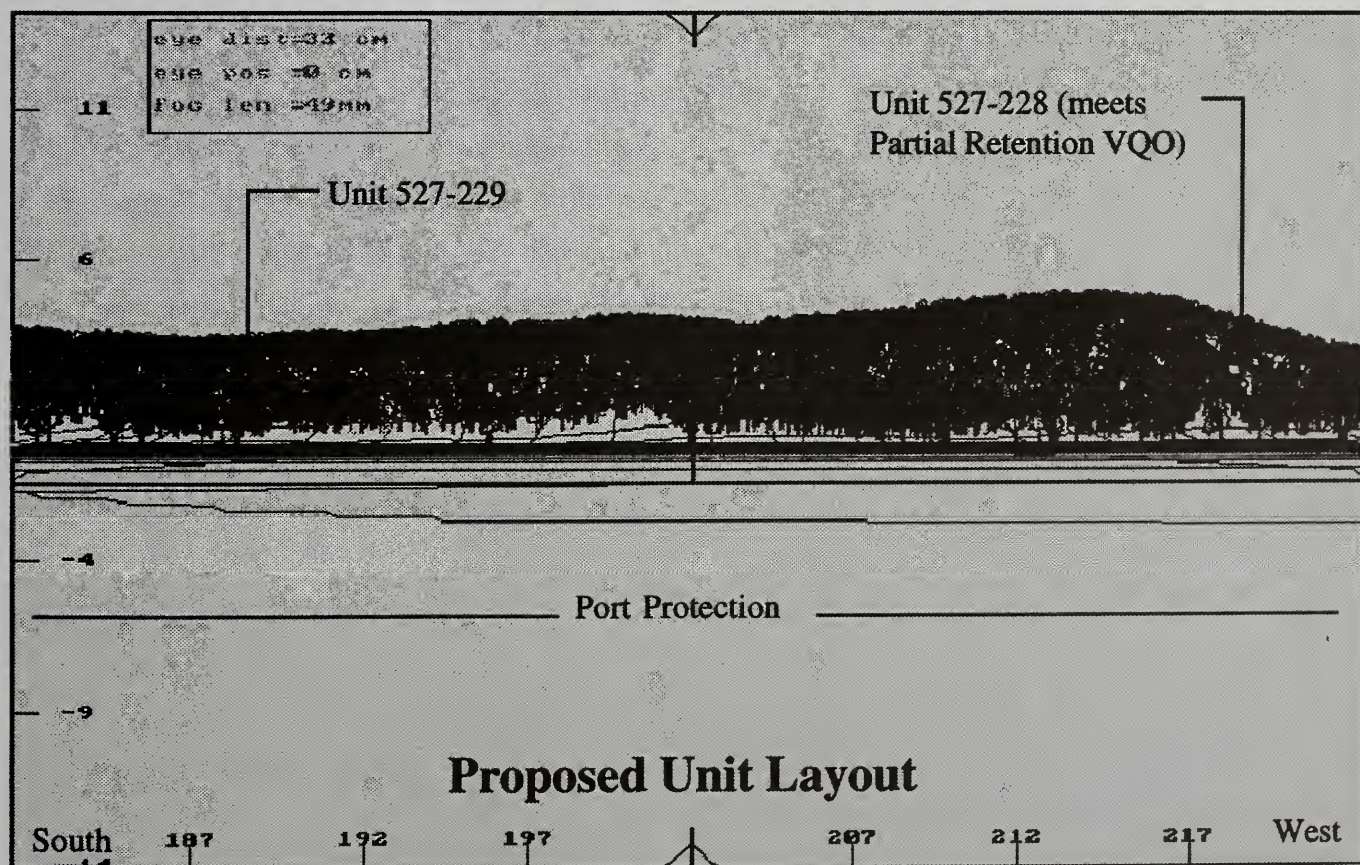
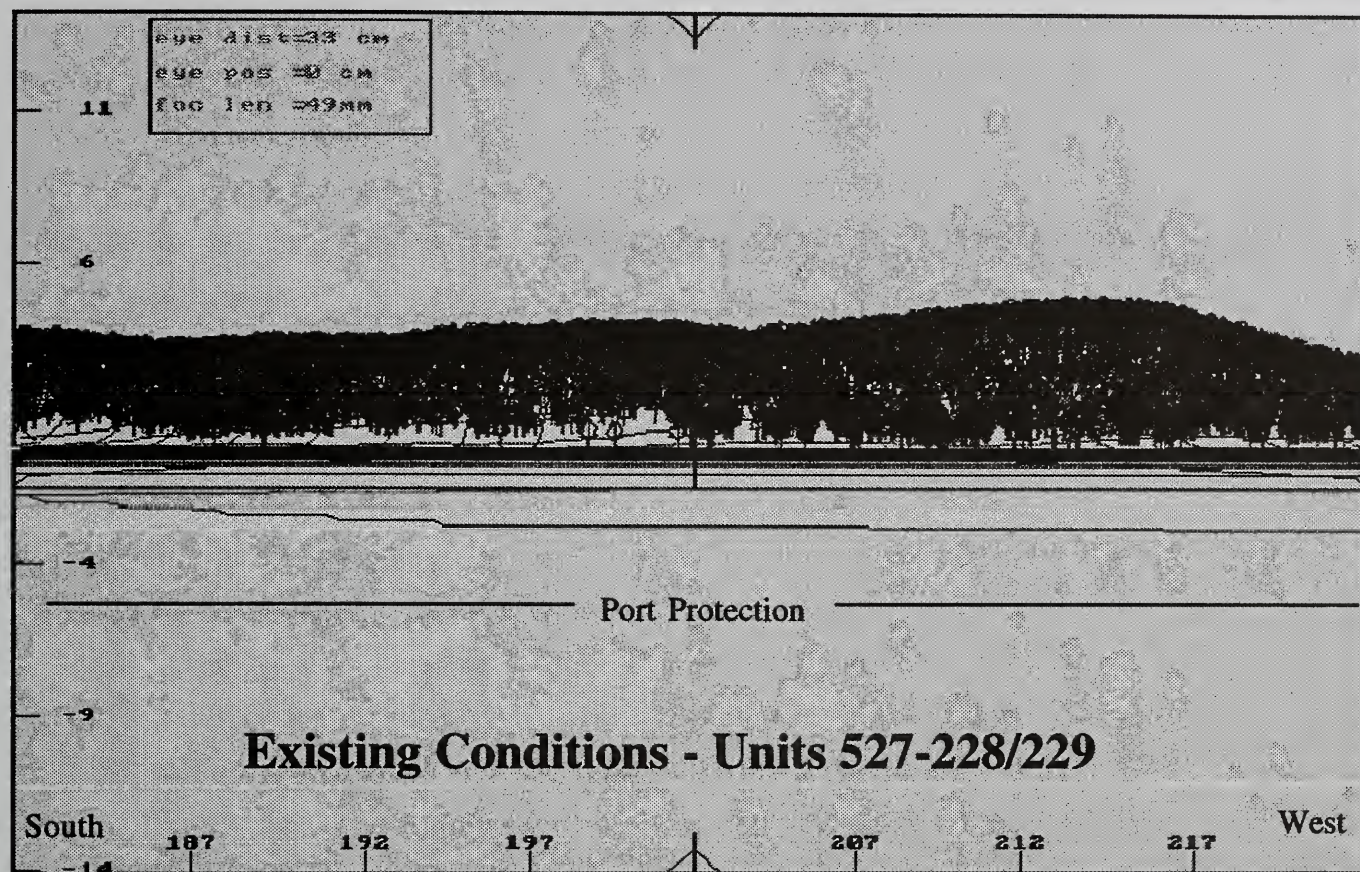


Figure M-5

Port Protection Perspective Plots



Appendix N

Coastal Zone Management Act: Sample Application Forms



Coastal Project Questionnaire and Certification Statement

Please answer all questions. To avoid a delay in processing, please call the department if you answer "yes" to any of the questions related to that department. Maps and plan drawings must be included with your packet. An incomplete packet will be returned.

■ APPLICANT INFORMATION

1. _____ Name of Applicant Address City State Zip Code Daytime Phone Fax Number	2. _____ Agent (or responsible party if other than applicant) Address City State Zip Code Daytime Phone Fax Number
--	---

■ PROJECT INFORMATION

	Yes	No
1. This activity is a: <input type="checkbox"/> new project <input type="checkbox"/> modification or addition to an existing project If a modification do you currently have any State, federal or local approvals related to this activity? <input type="checkbox"/> <input type="checkbox"/> <i>Note: Approval means any form of authorization. If "yes," please list below:</i>		
<div>Approval Type</div> <div>Approval #</div> <div>Issuance Date</div> <div>Expiration Date</div>		
_____	_____	_____
_____	_____	_____
_____	_____	_____
2. Has this project ever been reviewed by the State of Alaska per the ACMP? <input type="checkbox"/> <input type="checkbox"/> Previous State I.D. Number: AK _____ Previous Project Name: _____		

■ PROJECT DESCRIPTION

1. Attach the following: ● a detailed description of the project and all associated facilities; ● a project timeline for completion of all major activities in the proposal; ● a site plan depicting all proposed actions; ● other supporting documentation that would facilitate review of the project. Note: If the project is a modification, identify existing facilities as well as proposed activities on the site plan.
 Proposed starting date for project: _____ Proposed ending date for project: _____

2. Provide a brief description of your entire project and ALL associated facilities (access roads, caretaker facilities, waste disposal sites, etc.).

■ PROJECT LOCATION

1. Attach a copy of the topographical map with the project location marked on it.
2. Location of project (include nearest community or name of the land feature or body of water. Identify township, range and section):
Township _____ Range _____ Section _____ Meridian _____ Latitude/Longitude _____ / _____
3. The project is on: ☐ State Land* ☐ Federal Land ☐ Private Land ☐ Municipal Land
*State land can be uplands, tidelands, or submerged lands to 3 miles offshore. See Question #1 in DNR section.
4. The project is located in which region (see attached map): ☐ Northern ☐ Southcentral ☐ Southeast
☐ State Pipeline Coordinator's Office
Yes No
5. Is the project located in a coastal district? ☐ ☐
If yes, please contact the district representative listed on the attached sheet.
6. Identify the communities closest to your project location: _____

■ FEDERAL APPROVALS

1. Is the proposed project on U.S. Forest Service (USFS) land or will you need to cross USFS lands for access? ☐ Yes ☐ No
Does the cost of the project exceed \$250,000? ☐ ☐
If yes, have you applied for a USFS permit or approval? ☐ ☐
Date of submittal: _____
2. Is the proposed project on Bureau of Land Management (BLM) land or will you need to cross BLM lands for access? ☐ ☐
Does the cost of the project exceed \$250,000? ☐ ☐
If yes, have you applied for a BLM permit or approval? ☐ ☐
Date of submittal: _____
3. Will you be constructing a bridge over tidal (ocean) waters, or navigable rivers, streams or lakes? ☐ ☐
If yes, have you applied for a U.S. Coast Guard permit for a bridge? ☐ ☐
Date of submittal: _____
4. Will you be dredging or placing structures or fills in any of the following:
tidal (ocean) waters? streams? lakes? wetlands*? ☐ ☐
If yes, have you applied for a U.S. Army Corps of Engineers (COE) permit? ☐ ☐
Date of submittal: _____

(Note: Your application for this activity to the Corps of Engineers also serves as your application to DEC.)

*If you are not certain whether your proposed project is in a wetlands, contact the U.S. Corps of Engineers, Regulatory Branch at (907) 753-2720 for a wetlands determination (outside the Anchorage area call toll free 1-800-478-2712.)

5. Have you applied for a U.S. Environmental Protection Agency National Pollution Discharge Elimination System (NPDES) permit? ☐ Yes ☐ No

Date of submittal: _____

(Note: For information regarding the need for an NPDES permit, contact EPA at (907) 271-5083.)

6. Will you have a putrescible waste discharge within 5 miles of any public airport? ☐ ☐
If yes, please contact the Airports Division of the Federal Aviation Administration at (907) 271-5440.

7. Does the project include a nonfederal power project affecting any navigable body of water or located on federal land? Or, is utilization of surplus water from any federal government dam proposed? ☐ ☐

(Power projects consist of dams, water conduits, reservoirs, powerhouses, and transmission lines.)

If yes, have you applied for a permit from the Federal Energy Regulatory

Commission (FERC)? ☐ ☐

Date of submittal: _____

(Note: For information, contact FERC, Office of Hydropower Licensing, at (202) 208-0200.)

7. Have you applied for permits from any other federal agency? ☐ ☐

AGENCY

APPROVAL TYPE

DATE SUBMITTED

_____	_____	_____
_____	_____	_____
_____	_____	_____

■ DEPARTMENT OF ENVIRONMENTAL CONSERVATION (DEC) APPROVALS

1. Will a discharge of wastewater from industrial or commercial operations occur? ☐ Yes ☐ No
Will the discharge be connected to an already approved sewer system? ☐ ☐
Will the project include a stormwater collection/discharge system? ☐ ☐

2. Do you intend to construct, install, modify, or use any part of a wastewater (sewage or greywater) disposal system? ☐ ☐

a) If so, will the discharge be 500 gpd or greater? ☐ ☐

b) If constructing a domestic wastewater treatment or disposal system, will the system be located within fill material requiring a COE permit? ☐ ☐

If you answered yes to a or b, answer the following:

1) How deep is the bottom of the system to the top of the subsurface water table? _____

2) How far is any part of the wastewater disposal system from the nearest surface water? _____

3) Is the surrounding area inundated with water at any time of the year? ☐ ☐

4) How big is the fill area to be used for the absorption system? _____

(Questions 1 & 2 will be used by DEC to determine whether separation distances are being met;

Questions 3 & 4 relate to the required size of the fill if wetlands are involved.)

3. Do you expect to request a mixing zone for your proposed project? ☐ ☐

(If your wastewater discharge will exceed Alaska water quality standards, you may apply for a mixing zone.

If so, please contact DEC to discuss information required under 18 AAC 70.032.)

- | | | Yes | No |
|----|--|--------------------------|--------------------------|
| 4. | Do you plan to store or dispose of any type of solid waste resulting from this project?
<i>(Note: Solid waste means drilling wastes, garbage, refuse, sludge, and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, and agricultural operations, and from community activities.)</i> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. | Will your project require the application of oil, pesticides, and/or any other broadcast chemicals to the surface of the land and/or the waters of the state? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. | a. Will you have a facility that will generate air emissions from processing greater than five tons per hour of material? | <input type="checkbox"/> | <input type="checkbox"/> |
| | b. Will you have one or more units of fuel burning equipment, including flaring, with a heat input rating of 50 million Btu per hour or more? | <input type="checkbox"/> | <input type="checkbox"/> |
| | c. Will you have a facility containing incinerators with a total charging capacity of 1,000 pounds per hour or more? | <input type="checkbox"/> | <input type="checkbox"/> |
| | d. Will you incinerate sludge? | <input type="checkbox"/> | <input type="checkbox"/> |
| | e. Will you have any of the following processes: | <input type="checkbox"/> | <input type="checkbox"/> |
| | <input type="checkbox"/> Asphalt plant <input type="checkbox"/> Coal preparation facility
<input type="checkbox"/> Petroleum refinery <input type="checkbox"/> Portland cement plant
<input type="checkbox"/> Petroleum Contaminated Soils Cleanup | | |
| | f. Will your facility use the following equipment? | <input type="checkbox"/> | <input type="checkbox"/> |
| | <input type="checkbox"/> diesel internal combustion engines? (Total capacity equal to or greater than 1,750 kilowatts or total rated brake specific horsepower greater than 2,350 bhp)
<input type="checkbox"/> gas fired boilers (Total heat input rating of 100 million Btu per hour)
<input type="checkbox"/> oil fired boilers (Total heat input rating of 65 million Btu per hour)
<input type="checkbox"/> combustion turbines (total rated power output of 3,000 Hp) | | |
| | g. Will your facility burn more than the following per year in stationary equipment? | <input type="checkbox"/> | <input type="checkbox"/> |
| | <input type="checkbox"/> 1,000,000 gallons of fuel oil <input type="checkbox"/> 35,000 tons of coal
<input type="checkbox"/> 900 million cubic feet of natural gas | | |
| | h. If you have answered "yes" to any of the above questions (7 a-g), have you installed, replaced or modified any fuel burning or processing equipment since 1977? | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. | Will you be developing, constructing, installing, or altering a public water system? | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. | a. Will your project involve the operation of waterborne tank vessels or oil barges that carry crude or non-crude oil as bulk cargo, or the transfer of oil or other petroleum products to or from such a vessel or a pipeline system? | <input type="checkbox"/> | <input type="checkbox"/> |
| | b. Will your project require or include onshore or offshore oil facilities with an effective aggregate storage capacity of greater than 5,000 barrels of crude oil or greater than 10,000 barrels of non-crude oil? | <input type="checkbox"/> | <input type="checkbox"/> |
| | c. Will you be operating facilities on the land or water for the exploration or production of hydrocarbons? | <input type="checkbox"/> | <input type="checkbox"/> |

If you answered NO to ALL questions in this section, continue to next section.

If you answered YES to ANY of these questions, contact the DEC Regional office for information and application forms. Please be advised that all new DEC permits and approvals require a 30-day public notice period.

Based on your discussion with DEC, please complete the following:

Approval Type: _____ Date Submitted: _____

- | | | Yes | No |
|-----|---|--------------------------|--------------------------|
| 9. | Does your project qualify for a general permit for wastewater or solid waste? | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. | If you answered yes to any questions and are not applying for DEC permits, indicate reason below: | | |
| | <input type="checkbox"/> _____ (DEC contact) told me on _____ that no DEC approvals are required on this project. Reason: _____ | | |
| | <input type="checkbox"/> Other: _____ | | |

■ DEPARTMENT OF FISH & GAME (DFG) APPROVALS

- | | | | |
|----|---|--------------------------|---|
| 1. | Will you be working in, or placing anything in, a stream, river or lake? (This includes work in running water or on ice, within the active flood plain, on islands, the face of the banks or the tidelands down to mean low tide.) (Note: If the proposed project is located within a Federal Emergency Management Agency Zone, a Floodplain Development Permit may be required. Contact the local municipal government for additional information and a floodplain determination.) | Yes | No |
| | Name of <input type="checkbox"/> stream, <input type="checkbox"/> river, or <input type="checkbox"/> lake: _____ | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. | Will you do any of the following? | <input type="checkbox"/> | <input type="checkbox"/> |
| | <i>Please indicate below:</i> | | |
| | <input type="checkbox"/> Build a dam, river training structure or instream impoundment? | <input type="checkbox"/> | Alter or stabilize the banks? |
| | <input type="checkbox"/> Use the water? | <input type="checkbox"/> | Mine or dig in the beds or banks? |
| | <input type="checkbox"/> Pump water out of the stream or lake? | <input type="checkbox"/> | Use explosives? |
| | <input type="checkbox"/> Divert or alter the natural stream channel? | <input type="checkbox"/> | Build a bridge (including an ice bridge)? |
| | <input type="checkbox"/> Block or dam the stream (temporarily or permanently)? | <input type="checkbox"/> | Use the stream as a road (even when frozen), or crossing the stream with tracked or wheeled vehicles, log-dragging or excavation equipment (back-hoes, bulldozers, etc.)? |
| | <input type="checkbox"/> Change the water flow or the water channel? | <input type="checkbox"/> | Install a culvert or other drainage structure? |
| | <input type="checkbox"/> Introduce silt, gravel, rock, petroleum products, debris, chemicals, or other organic/inorganic waste of any type into the water? | <input type="checkbox"/> | Construct a weir? |
| | | <input type="checkbox"/> | Use an in-stream structure not mentioned here? |
| 3. | Is your project located in a designated State Game Refuge, Critical Habitat Area or State Sanctuary? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. | Does your project include the construction/operation of a salmon hatchery? | <input type="checkbox"/> | <input type="checkbox"/> |

- | | | Yes | No |
|----|--|--------------------------|--------------------------|
| 5. | Does your project affect, or is it related to, a previously permitted salmon hatchery? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. | Does your project include the construction of an aquatic farm? | <input type="checkbox"/> | <input type="checkbox"/> |

If you answered "No" to ALL questions in this section, continue to next section.

If you answered "Yes" to ANY questions under 1-3, contact the Regional DFG Habitat Division Office for information and application forms.

If you answered "Yes" to questions 4-6, contact the DFG at the CFMD division headquarters for information and application forms.

Based on your discussion with DFG, please complete the following:

Approval Type: _____ Date Submitted: _____

7. If you answered yes to any questions and are not applying for DFG permits, indicate reason below:
- ☐ _____ (DFG contact) told me on _____ that no DFG approvals are required. Reason: _____
- ☐ Other: _____

■ DEPARTMENT OF NATURAL RESOURCES (DNR) APPROVALS

- | | | Yes | No |
|----|---|--------------------------|--------------------------|
| 1. | Is the proposed project on State-owned land or will you need to cross State-owned land for access? ("access" includes temporary access for construction purposes) | <input type="checkbox"/> | <input type="checkbox"/> |
| | <i>Note: In addition to State-owned uplands, the State owns almost all land below the ordinary high water line of navigable streams, rivers and lakes, and below the mean high tide line seaward for three miles.</i> | | |
| 2. | Do you plan to dredge or otherwise excavate/remove materials on State-owned land? | <input type="checkbox"/> | <input type="checkbox"/> |
| | Location of dredging site if other than the project site: _____ | | |
| | Township _____ Range _____ Section _____ Meridian _____ | | |
| 3. | Do you plan to place fill or dredged material on State-owned land? | <input type="checkbox"/> | <input type="checkbox"/> |
| | Location of fill disposal site if other than the project site: _____ | | |
| | Township _____ Range _____ Section _____ Meridian _____ | | |
| | Source is on: <input type="checkbox"/> State Land <input type="checkbox"/> Federal Land <input type="checkbox"/> Private Land <input type="checkbox"/> Municipal Land | | |
| 4. | Do you plan to use any of the following State-owned resources: | <input type="checkbox"/> | <input type="checkbox"/> |
| | <input type="checkbox"/> <i>Timber:</i> Will you be harvesting timber? Amount: _____ | | |
| | <input type="checkbox"/> <i>Materials such as rock, sand or gravel, peat, soil, overburden, etc.:</i> | | |
| | Which material? _____ Amount: _____ | | |
| | Location of source: <input type="checkbox"/> Project site <input type="checkbox"/> Other, describe: _____ | | |
| | Township _____ Range _____ Section _____ Meridian _____ | | |
| 5. | Are you planning to use or divert any fresh water? | <input type="checkbox"/> | <input type="checkbox"/> |
| | Amount (gallons per day): _____ | | |
| | Source: _____ Intended Use: _____ | | |

- | | | Yes | No |
|-----|--|--------------------------|--------------------------|
| 6. | Will you be building or altering a dam? | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. | Do you plan to drill a geothermal well? | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. | At any one site (regardless of land ownership), do you plan to do any of the following? . . . | <input type="checkbox"/> | <input type="checkbox"/> |
| | <input type="checkbox"/> Mine five or more acres over a year's time? | | |
| | <input type="checkbox"/> Mine 50,000 cubic yards or more of materials (rock, sand or gravel, soil, peat, overburden, etc.) over a year's time? | | |
| | <input type="checkbox"/> Have a cumulative unreclaimed mined area of five or more acres? | | |
| | If you plan to mine less than the acreage/amount stated above and have a cumulative unreclaimed mined area of less than five acres, do you intend to file a voluntary reclamation plan for approval? | | <input type="checkbox"/> |
| 9. | Will you be exploring for or extracting coal? | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. | Will you be drilling for oil/gas? | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. | Will you be investigating or removing historical or archaeological resources on State-owned land? | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. | Is the proposed project located within a known geophysical hazard area? | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. | Is the proposed project located in a unit of the Alaska State Park System? | <input type="checkbox"/> | <input type="checkbox"/> |

If you answered "No" to ALL questions in this section, continue to certification statement.

If you answered "Yes" to ANY questions in this section, contact DNR for information.

Based on your discussion with DNR, please complete the following:

Approval Type: _____ Date Submitted: _____

14. If you answered yes to any questions and are not applying for DNR permits, indicate reason below:
- ☐ _____ (DNR contact) told me on _____ that no DNR approvals are required. Reason: _____
- ☐ Other: _____

Please be advised that the CPQ identifies permits subject to a consistency review. You may need additional permits from other agencies or local governments to proceed with your activity.

Certification Statement

The information contained herein is true and complete to the best of my knowledge. I certify that the proposed activity complies with, and will be conducted in a manner consistent with, the Alaska Coastal Management Program.

Signature of Applicant or Agent

Date

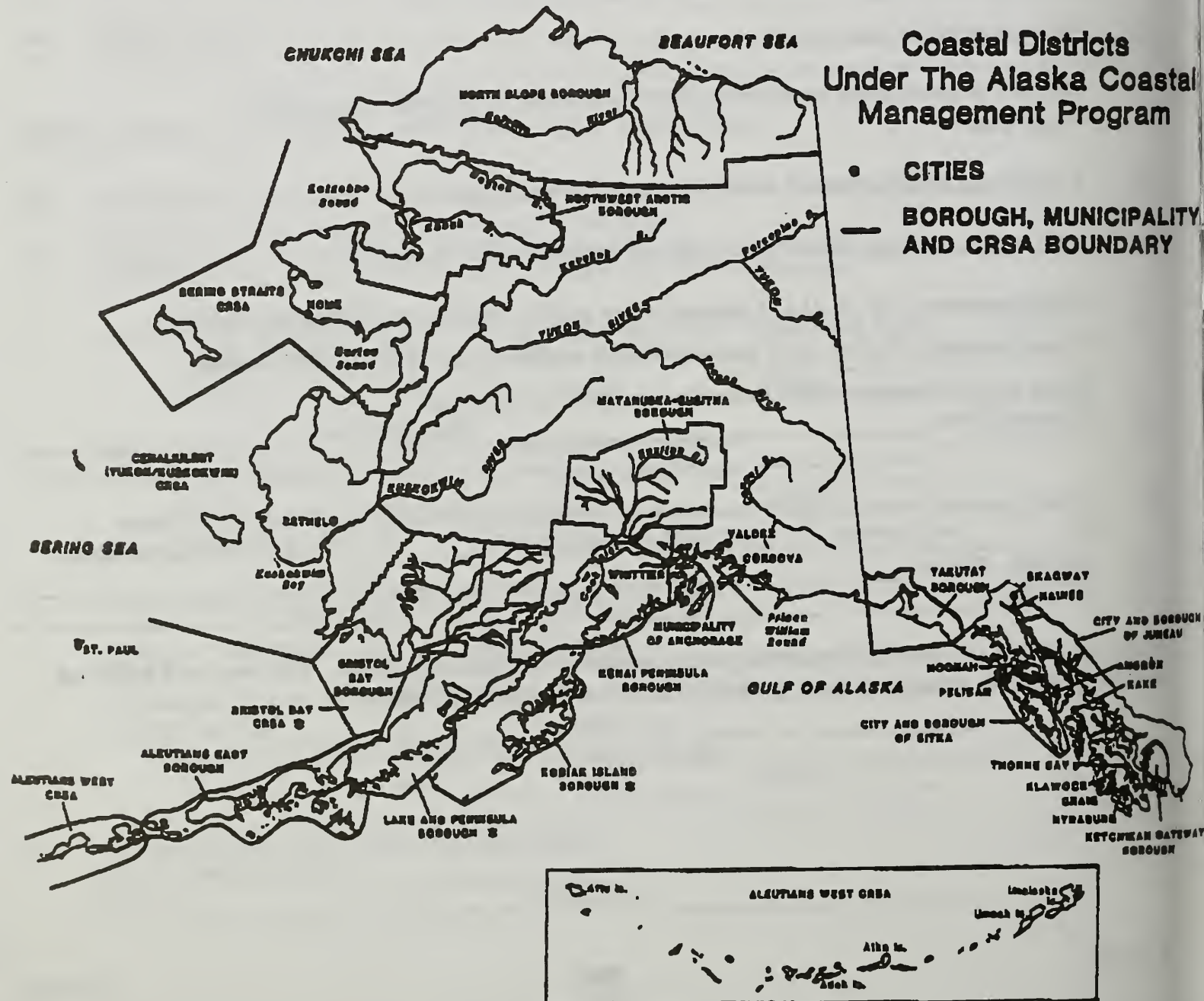
Note: Federal agencies conducting an activity that will affect the coastal zone are required to submit a federal consistency determination, per 15 CFR 930, Subpart C, rather than this certification statement.

This certification statement will not be complete until all required State and federal authorization requests have been submitted to the appropriate agencies.

- To complete your packet, please attach your State permit applications and copies of your federal permit applications to this questionnaire.

Coastal Districts Under The Alaska Coastal Management Program

- CITIES
- BOROUGH, MUNICIPALITY
AND CRSA BOUNDARY



EPA
Log Transfer Facility
402 Permit Application

Response to this document when accompanied by the U.S. Army Corps of Engineers Sec 10/404 permit application and the state Coastal Zone Management Questionnaire constitutes the NPDES Permit application as outlined in Sec. V.C. of the Memorandum of Agreement between the Department of the Army Corps of Engineers and the Environmental Protection Agency dated 22 October 1985.

1. Principal mechanism to move logs into or out of the water (continuous chain, crane, A-frame, etc.)
2. Expected facility life span
3. Average volume of timber anticipated to be transferred (board feet, Scribner scale) per year _____
4. Specify the yearly/seasonal duration of operation (all year, May thru September only, six days per week, etc.).
all year _____
specific months _____
days/week _____
5. Will the facility have a contiguous log storage or sorting yard?
6. Site plan attached (including any contiguous storage/sorting yard) with discharge points indicated
7. Name of receiving waters (fresh & marine)
8. Bathymetric data (attached) for receiving waters showing depth contours to at least 60 feet below Mean Lower Low Water

NPDES PERMIT NUMBER: _____
(To be provided by EPA)

STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES
DIVISION OF LAND

☐ Northern Region
3700 Airport Way
Fairbanks, AK 99709
(907) 451-2705

☐ Southcentral Region
PO Box 107005
Anchorage, AK 99510-7005
(907) 762-2253

☐ Southeast Region
400 Willoughby, #400
Juneau, AK 99801
(907) 465-3400

APPLICATION FOR PURCHASE OR LEASE OF STATE LAND

Date _____ ADL # _____
(assigned by DNR)

Applicant Name _____ Doing Business As _____
Mailing Address _____ City _____ State _____ Zip _____
() ()
Home Phone _____ Work Phone _____ Contact Person _____

Is applicant a corporation qualified to do business in Alaska? ☐ yes ☐ no. Is the corporation in good standing with the State of Alaska, Dept. of Commerce and Economic Development? ☐ yes ☐ no.

Is applicant 18 years or older? ☐ yes ☐ no. Are you applying for a ☐ lease or ☐ sale? What kind of lease or sale are you applying for? ☐ Tideland; ☐ Public and Charitable Use; ☐ Grazing; ☐ Negotiated; ☐ Competitive.

If a lease, how many years are you applying for? _____ years.

Legal Description: _____ Meridian, Township _____, Range _____, Section _____

Municipality _____ Acres _____ LORAN Reading (optional) _____

Geographic Location: _____

What is the proposed use of and activity on the state land? _____

Are there any improvements on the land now? ☐ yes ☐ no. If yes, who owns the improvements, and what is their estimated value? _____

Are there any improvements or construction planned? ☐ yes ☐ no. If yes, describe them and their estimated value. _____

State the proposed construction date: _____; estimated completion date: _____

Name and address of adjacent land owners and, if you are applying for tidelands, the name and address of the adjacent upland owners: _____

Are there any existing leases or permits covering the land applied for? ☐ yes ☐ no. If yes, ☐ lease or ☐ permit?
Name lease/permit is issued under? _____

Non-Refundable Filing Fee: \$100.00
(fee may be waived under 11 AAC 05.010(c))

Date Stamp: _____

Do you think you qualify for a non-compensated lease or sale?

- ☐ .035(b)(2) (to correct an error or omission);
- ☐ .035(b)(3) (owner of bona fide improvements);
- ☐ .035(b)(5) (occupied, or are the heir of someone who occupied the land before statehood);
- ☐ .035(b)(7) (adjacent owner of remnant of state land, not adjoining other state land);
- ☐ .068 and .087 (U.S. Forest Service Permittee);
- ☐ .075(c) (upland owner or lessee);
- ☐ .035(f) (erected a building and used the land for business purposes);
- ☐ .102 (current, or former long-term lessee);
- ☐ .810(a) (federal or state agency or political subdivision; utility owned and operated by a government agency or non-profit cooperative; non-profit corporation, association, club, or society organized for the operation of a cemetery or solid waste facility);
- ☐ .810(b)-(d) (non-profit corporation, association, club, or society operated for charitable, religious, scientific, or educational purposes, or for the promotion of social welfare, or a youth encampment);
- ☐ .810(f) (non-profit cooperative organized under AS 10.25, or licensed public utility);
- ☐ .810(h) (Alaska Aerospace Development Corporation);
- ☐ .810(i) (Port Authority);
- ☐ other: _____

Please explain: _____

Do you think you qualify to acquire the land for less-than-fair-market value? ☐ yes ☐ no. If yes, under what provision of AS 38.05?

- ☐ .097 (youth encampment or similar recreational purpose);
- ☐ .098 (senior citizen discount).

Signature

Date

If applying on behalf of an agency, municipality, or organization, state which one

title

NOTICE TO APPLICANT:

- * This application will not be considered unless it is completed in full and accompanied by the appropriate filing fee, and by all applicable items described below. **THE FILING FEE WILL NOT BE REFUNDED NOR IS IT TRANSFERABLE.** All checks are to be made payable to the Department of Revenue.
- * **INCLUDE A DEVELOPMENT PLAN, SEE ATTACHED INSTRUCTIONS.**
- * The applicant may be required to deposit a sum of money sufficient to cover the estimated cost of survey, appraisal, and advertising. If the land is sold or leased to another party, the deposit will be returned to the applicant.
- * The filing of this application and payment of the filing fee vests the applicant with no right or priority in the lands applied for. It is merely an expression of the desire to purchase or lease a parcel of land when and if it becomes available. Filing an application serves the purpose of notifying the state that an individual is interested in purchasing or leasing land. It is not a claim, nor does it in any way obligate the state to sell or lease land.
- * If the site applied for is within the Coastal Zone, include a Coastal Zone Management Questionnaire.
- * If the application is for use in conjunction with a guide/outfitter operation, include proof of a guide/outfitter certification for the use area.
- * If the application is for a commercial operation, include a copy of your business license.
- * If the application is for a commercial fish camp, include a copy of your limited entry permit or an interim-use salmon set net permit.
- * If applying for a senior citizen discount include form 102-1042.
- * AS 38.05.035(a) authorizes the director to decide what information is needed to process an application for the sale or use of state land and resources. This information is made a part of the state public land records and becomes public information under AS 09.25.110 and 09.25.120 (unless the information qualifies for confidentiality under AS 38.05.035(a)(9) and confidentiality is requested). Public information is open to inspection by you or any member of the public. A person who is the subject of the information may challenge its accuracy or completeness under AS 44.99.310, by giving a written description of the challenged information, the changes needed to correct it, and a name and address where the person can be reached. False statements made in an application for a benefit are punishable under AS 11.56.210.

STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES
DIVISION OF LAND

APPLICANT ENVIRONMENTAL RISK QUESTIONNAIRE

The purpose of this questionnaire is to help clarify the types of activities you propose to undertake. The questions are meant to help identify the level of environmental risk that may be associated with the proposed activity. The Division of Land's evaluation of environmental risk for the proposed activity does not imply that the parcel or the proposed activity is an environmental risk from the presence or use of hazardous substances.

Through this analysis, you may become aware of environmental risks that you did not know about. If so, you may want to consult with an environmental engineer or an attorney.

Applicant Name		Doing Business As		
Address () ()		City	State	Zip
Home Phone	Work Phone	Contact Person		

Describe the proposed activity:

In the course of your proposed activity will you generate, use, store, transport, dispose of, or otherwise come in contact with toxic and/or hazardous materials, and/or hydrocarbons? Yes [] No []

If yes, please list the substances and the associated quantities. Use a separate sheet of paper, if necessary.

If the proposed activities involve any storage tanks, either above or below ground, address the following questions for each tank. Please use a separate sheet of paper, if necessary, and, where appropriate, include maps or plats:

- a. Where will the tank be located? _____

- b. What will be stored in the tank? _____

- c. What will be the tank's size in gallons? _____

- d. What will the tank be used for? (Commercial or residential purposes?) _____

- e. Will the tank be tested for leaks? _____
- f. Will the tank be equipped with leak detection devices? Yes ☐ No ☐. If no, describe: _____

Do you have any reason to suspect, or do you know if the site may have been previously contaminated? Yes ☐ No ☐.

If yes, please explain: _____

I certify that due diligence has been exercised and proper inquiries made in completing this questionnaire, and that the foregoing is true and correct to the best of my knowledge.

Applicant

Date

AS 38.05.035(a) authorizes the director to decide what information is needed to process an application for the sale or use of state land and resources. This information is made a part of the state public land records and becomes public information under AS 09.25.110 and 09.25.120 (unless the information qualifies for confidentiality under AS 38.05.035(a)(9) and confidentiality is requested). Public information is open to inspection by you or any member of the public. A person who is the subject of the information may challenge its accuracy or completeness under AS 44.99.310, by giving a written description of the challenged information, the changes needed to correct it, and a name and address where the person can be reached. False statements made in an application for a benefit are punishable under AS 11.58.210.

DIVISION OF LAND AND REVENUE for completing a Development Plan to lease State Land

A development plan is a written statement (narrative) and a Diagram (drawing) which together describe and show how you intend to develop and use the land. This information should be a detailed part of or extension of your general business plan or plan of operations.

The information contained in a development plan is needed to provide a complete review of the proposed use and development of the lease parcel, and helps in determining the terms and conditions of the lease. The amount and type of information included in the development plan will depend on the nature of the proposed use and level of development. Insufficient information or failure to provide a development plan may result in a delay in processing or rejection of the application as incomplete.

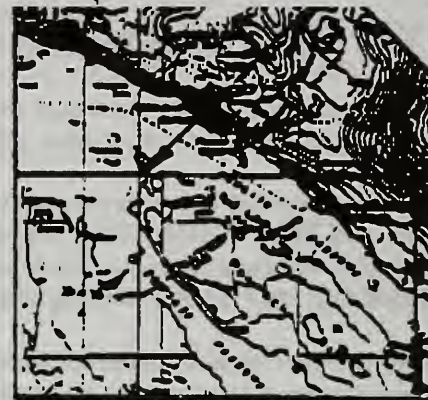
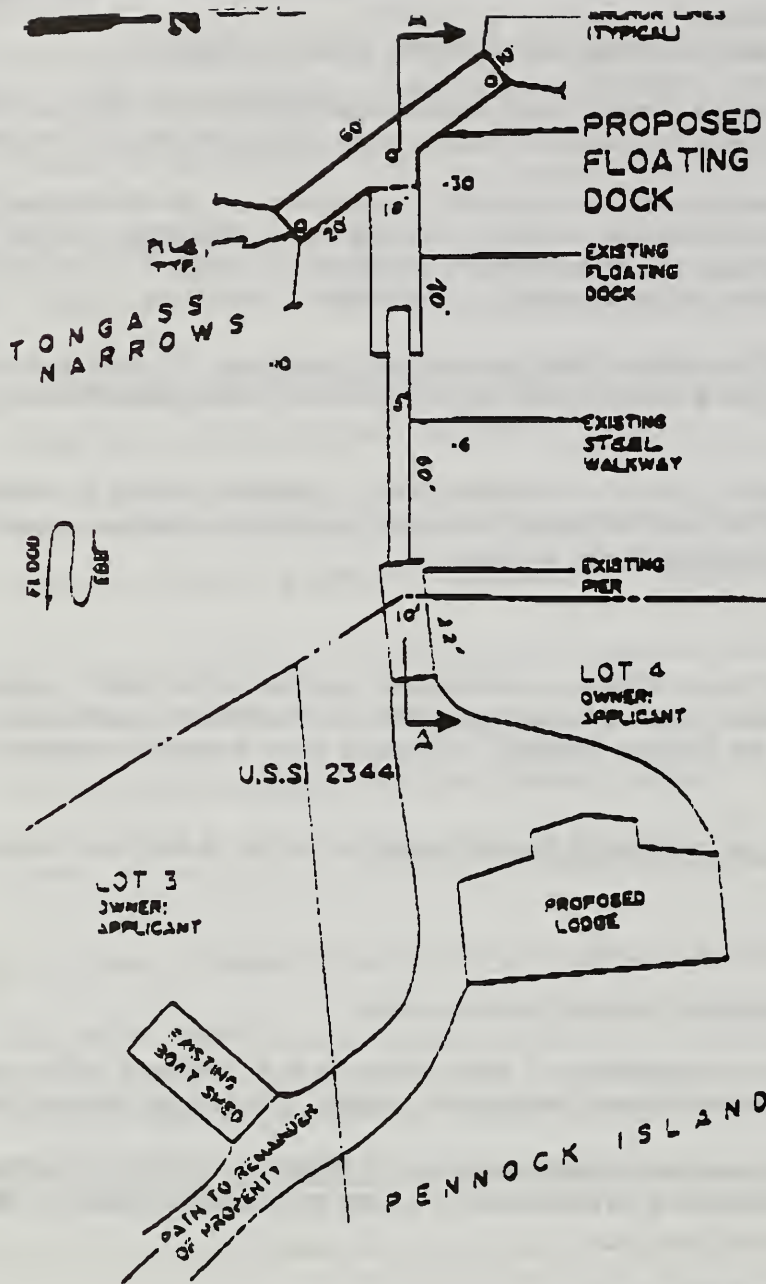
The development plan must represent preconstruction plans for the proposed improvements and/or use areas. For existing or expiring leases without a current development plan or if the development plan is being updated, the plan must show existing improvements and/or use areas, and any desired changes.

If your lease application is approved, the development plan becomes a part of the lease document. Authorized activities are limited only to those addressed in the development plan. The development plan must be updated whenever development changes are desired, or if there is a change in activity that was not addressed when the application was reviewed.

GUIDELINES: The development plan must include:

A. Narrative portion. A detailed written description of the type of activities or development planned for the parcel. Specify the timeframes of development including any planned phases. Discuss if any facilities are intended for commercial use, or will be rented out. Provide a description and explanation of the items shown on the Diagram (drawing). Following is a list of specific information to be included in the narrative, if applicable to the proposed project:

- **Legal Description.** Provide a legal description of the parcel, i.e. a metes and bounds description, survey, lot and block, aliquot part, or other legal description.
- **Timber Removal.** Estimate amount of timber to be cut.
- **Site preparation.** Describe any plans for dredge and fill operations including material sources.
- **Access.** Describe existing and planned access, and mode of transportation. If public access is to be restricted, define possible alternative public access routes. Discuss any utility access routes or needs involving the property. List adjacent property owners.
- **Buildings and other structures.** Describe each building or structure, whether permanent or temporary, including a description of the foundation, and building construction type; when the structure is to be constructed, or placed on the parcel; duration of use; and what activities are to occur within each structure.
- **Power source.** Describe type and availability of power source to the site.
- **Waste types, waste sources, and disposal methods.** List the types of waste that will be generated on-site, including solid waste, the source, and method of disposal.
- **Hazardous substances.** Describe the types and volumes of hazardous substances present or proposed, the specific storage location, types of liners used for hazardous or toxic material storage, and spill plan and spill prevention methods. Describe any containment structure(s) and volume of containment structure(s), the type of lining material, and configuration of the containment structure. Attach appropriate Material Safety Data Sheets (MSDS). If your development or use will not result in Hazardous substances on the site then provide a statement to that effect.
- **Water supply.** Describe the water supply and wastewater disposal method.
- **Parking areas and storage areas.** Describe long term and short term parking and storage areas. Discuss areas where storage (for a fee) will be provided for materials from other companies. Describe the items to be stored in all storage areas, and any measures that will be taken to minimize spills from leaking vehicles or equipment.
- **Number of people using the site.** Estimate the number of clients that will be accessing or using the site.
- **Closure/Restoration plans.** Discuss the expected means by which the lease area would be cleared of improvements and restored to a vacant and orderly condition. [Provide a closure/reclamation plan, if required for the type of authorization being applied for, e.g. material sale.]



VICINITY MAP

SOURCE USGS QUAD
KETCHIKAN 8-4

0 1/2 1 2

SCALE IN MILES

LAT. - 54°20'07" N

LONG. - 131°39'13" W

PURPOSE:
PROVIDE BOAT ACCESS TO
ISLAND RESIDENCE AND
LODGE FACILITY.

DATUM: MLLW + 0.0

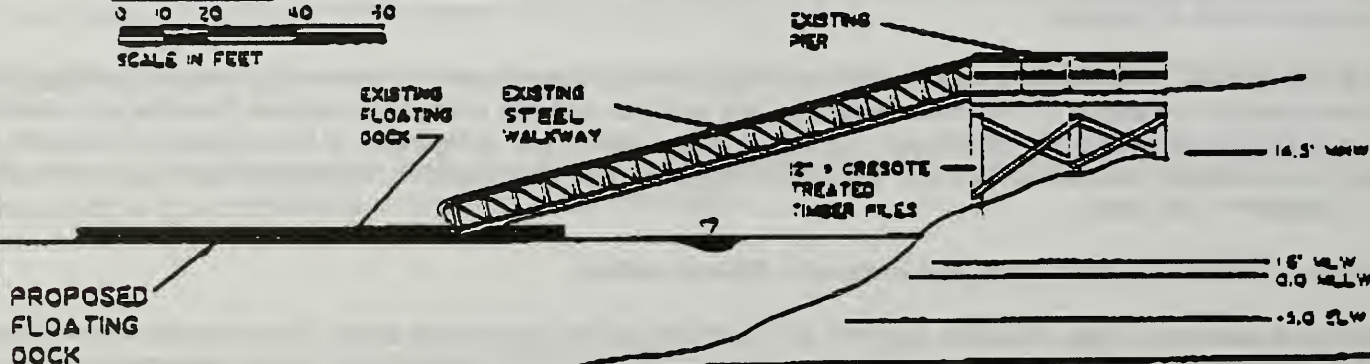
NOTES

1. APPROX. TO EXISTING PIER TO BEAD UP TO
NEW PIER AND PIER ARE INSTALLED WITHIN
TWO YEARS.
2. PROPOSED PIER TO BE 12" DIA. CREOSOTE-
TREATED PILES OR GULF SPEC.

PROPOSED FLOATING DOCK PLAN

0 10 20 40 60

SCALE IN FEET



SECTION A-A

NOT TO SCALE

Date Prepared:

Applicant's Name:

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF LAND

DIAGRAM

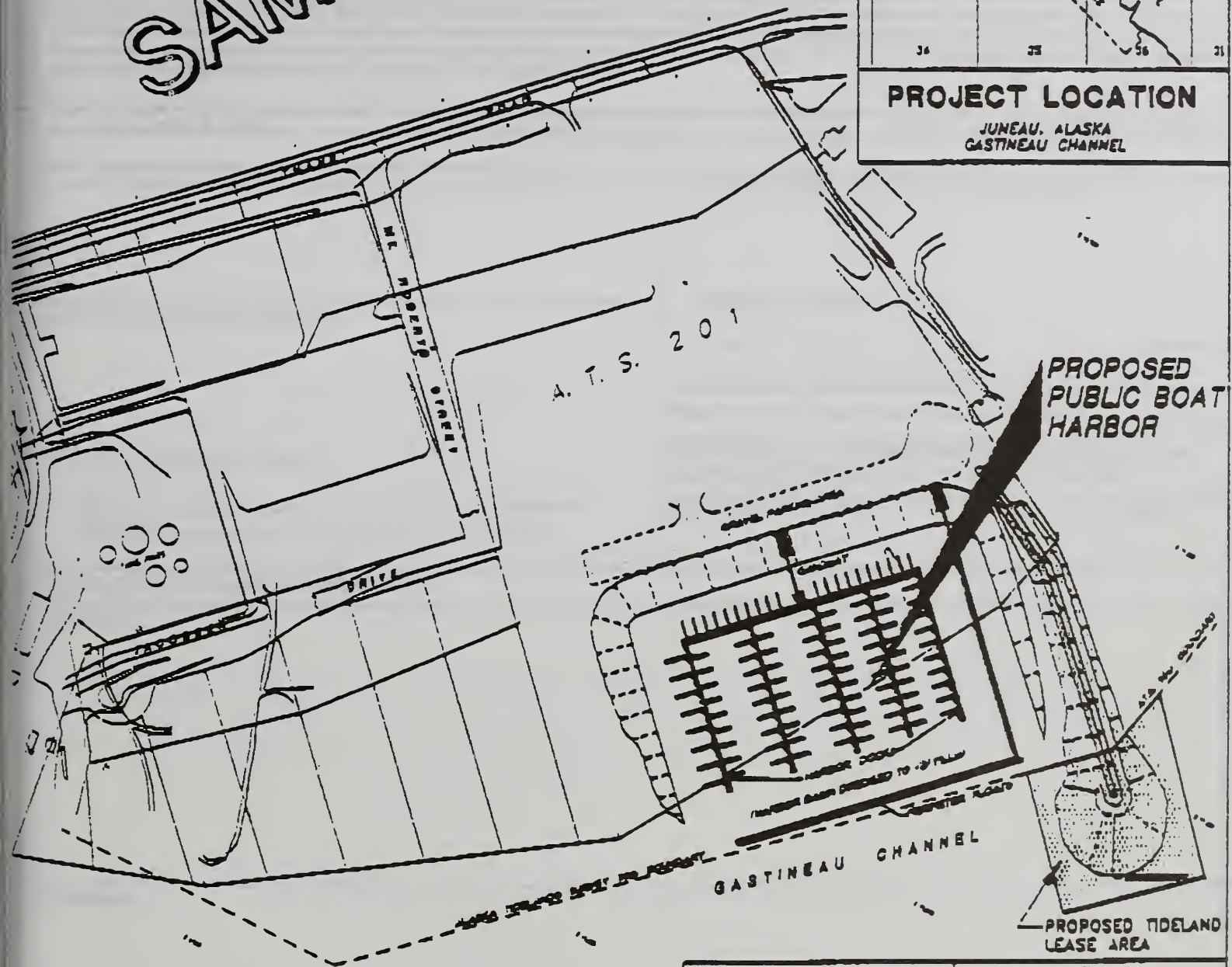
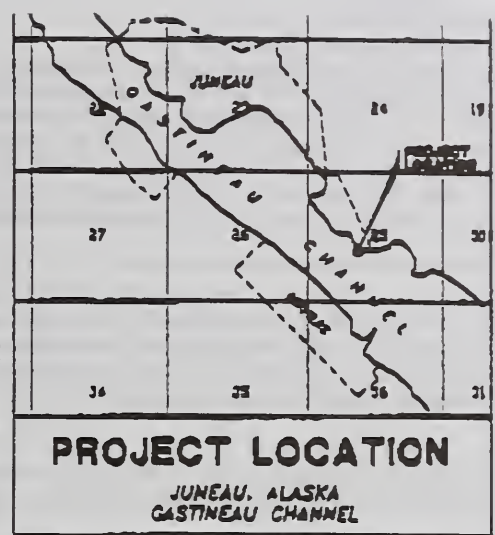
Sec.(s) _____ Township _____ Range _____ Meridian _____

Scale: " = _____

SHEET 1 OF 2 | File # _____

SAMPLE

SAMPLE



GASTINEAU CHANNEL TIDAL DATUM:
(LAT. 58°17'00" N, LONG. 134°40'00" W)

HIGHEST TIDE OBSERVED (11/02/48)	22.70
MEAN HIGHER HIGH WATER	18.40
MEAN HIGH WATER	15.40
MEAN TIDE LEVEL	13.50
MEAN LOW WATER	11.60
MEAN LOWER LOW WATER	9.00
LOWEST TIDE OBSERVED (1/18/57)	-8.70

0 100 200 300 400 500
APPROXIMATE SCALE IN FEET

N-17

PROPOSED PUBLIC BOAT HARBOR

DATE: APRIL 23, 1993	APPLICANT:
STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES DIVISION OF LAND	
TIDELAND LEASE DIAGRAM	
NE 1/4 of SE1/4 of Section 25, T. 41 S., R. 57 E., Copper River Meridian	
SHEET 1 of 2	LEASE ACL No.

VICINITY MAP

Date Prepared:	Applicant's Name:
STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES DIVISION OF LAND	
DEVELOPMENT PLAN DIAGRAM	
Sec.(s) _____ T. _____ S., R. _____ E., CRM	
Scale: 1" = _____	
SHEET _____ OF _____	LEASE FILE # ADL _____

Public reporting burden for this collection of information is estimated to average 6 hours per response for the majority of cases, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Applications for larger or more complex projects, or those in ecologically sensitive areas, could take up to 500 hours. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Service, Directorate for Information Operations and Projects, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302; and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003), Washington, DC 20503. Please DO NOT RETURN your completed form to either of these addresses. Completed application must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

The Department of the Army permit program is authorized by Section 10 of the Rivers and Harbors Act of 1899, Section 404 of the Clean Water Act and Section 103 of the Mar Protection, Research and Sanctuaries Act. These laws require permits authorizing activities in or affecting navigable waters of the United States, the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Information provided on this form will be used in evaluating the application for a permit. Information in this application is made a matter of public record through issuance of a public notice. Disclosure of the information requested is voluntary; however, the data requested are necessary in order to communicate with the applicant and to evaluate the permit application. If necessary information not provided, the permit application cannot be processed nor can a permit be issued.

One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawing and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

1. APPLICATION NUMBER (To be assigned by Corps)

2. NAME, ADDRESS, AND TITLE OF AUTHORIZED AGENT

Telephone no. during business hours

AG () _____ (Residence)

AG () _____ (Office)

Statement of Authorization: I hereby designate and authorize _____ to act in my behalf as my agent in the processing of this permit application and to furnish, upon request, supplemental information in support of the application.

SIGNATURE OF APPLICANT

DATE

Telephone no. during business hours

AG () _____ (Residence)

AG (907) _____ (Office)

4. DETAILED DESCRIPTION OF PROPOSED ACTIVITY

4a. ACTIVITY

4b. PURPOSE

4c. DISCHARGE OF DREDGED OR FILL MATERIAL

5. NAMES AND ADDRESSES OF ADJOINING PROPERTY OWNERS, LESSEES, ETC., WHOSE PROPERTY ALSO ADJOINS THE WATERWAY

6. WATERBODY AND LOCATION ON WATERBODY WHERE ACTIVITY EXISTS OR IS PROPOSED

7. LOCATION ON LAND WHERE ACTIVITY EXISTS OR IS PROPOSED

ADDRESS:

STREET, ROAD, ROUTE OR OTHER DESCRIPTIVE LOCATION

COUNTY

STATE

ZIP CODE

LOCAL GOVERNING BODY WITH JURISDICTION OVER SITE

8. Is any portion of the activity for which authorization is sought now complete? ☐ YES ☐ NO
If answer is "yes" give reasons, month and year the activity was completed. Indicate the existing work on the drawings.

9. List all approvals or certifications and denials received from other federal, interstate, state or local agencies for any structures, construction, discharges or other activities described in this application.

ISSUING AGENCY	TYPE APPROVAL	IDENTIFICATION NO.	DATE OF APPLICATION	DATE OF APPROVAL	DATE OF DENIAL
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10. Application is hereby made for a permit or permits to authorize the activities described herein. I certify that I am familiar with the information contained in the application, and that to the best of my knowledge and belief such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities or I am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT

DATE

SIGNATURE OF AGENT

DATE

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 3 has been filled out and signed.

18 U.S.C. Section 1001 provides that "Whoever, in any manner within the jurisdiction of any department or agency of The United States knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false fictitious or fraudulent statement or entry shall be fined not more than \$50,000 or imprisoned not more than five years, or both."

N-20

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